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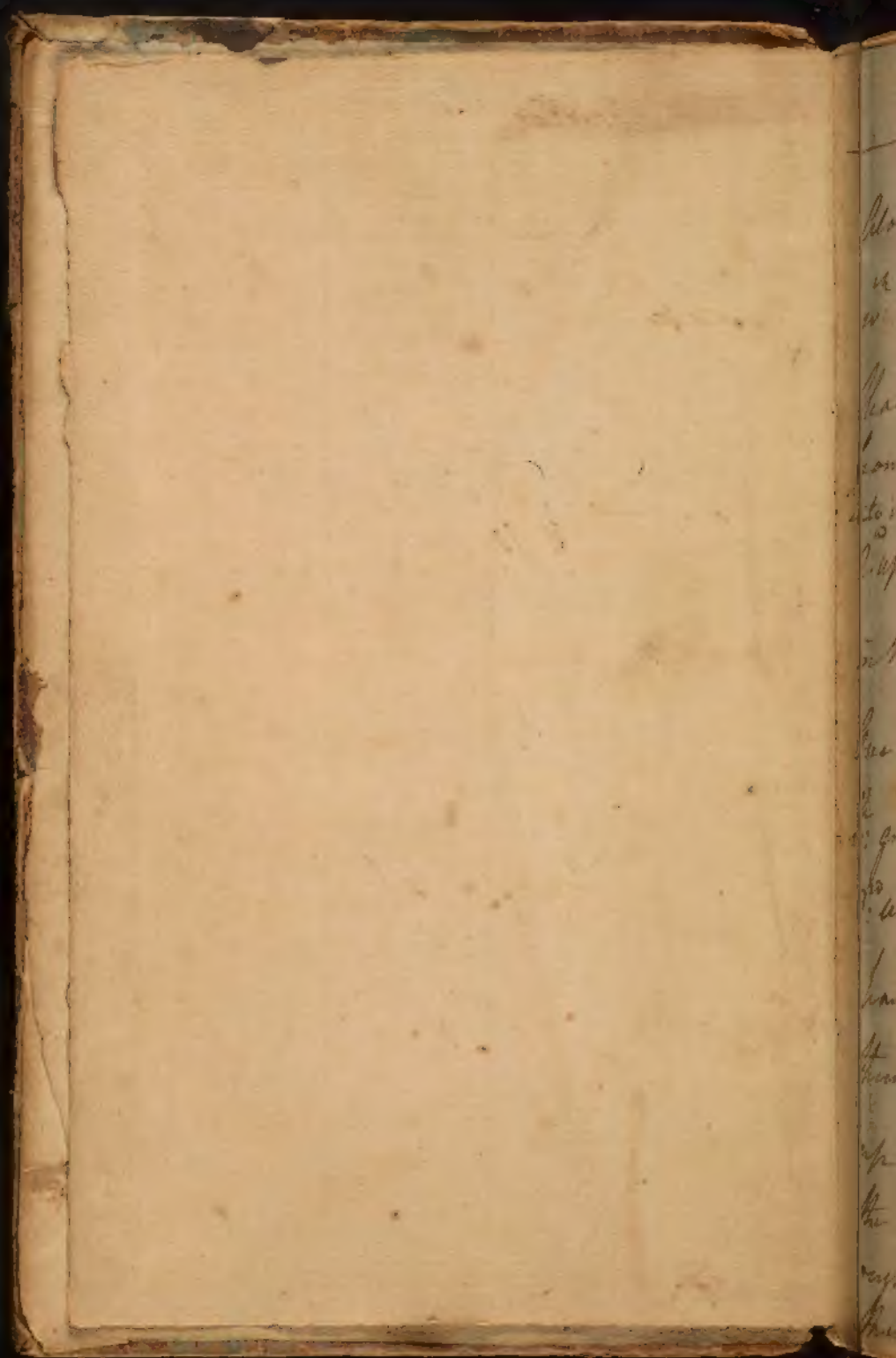
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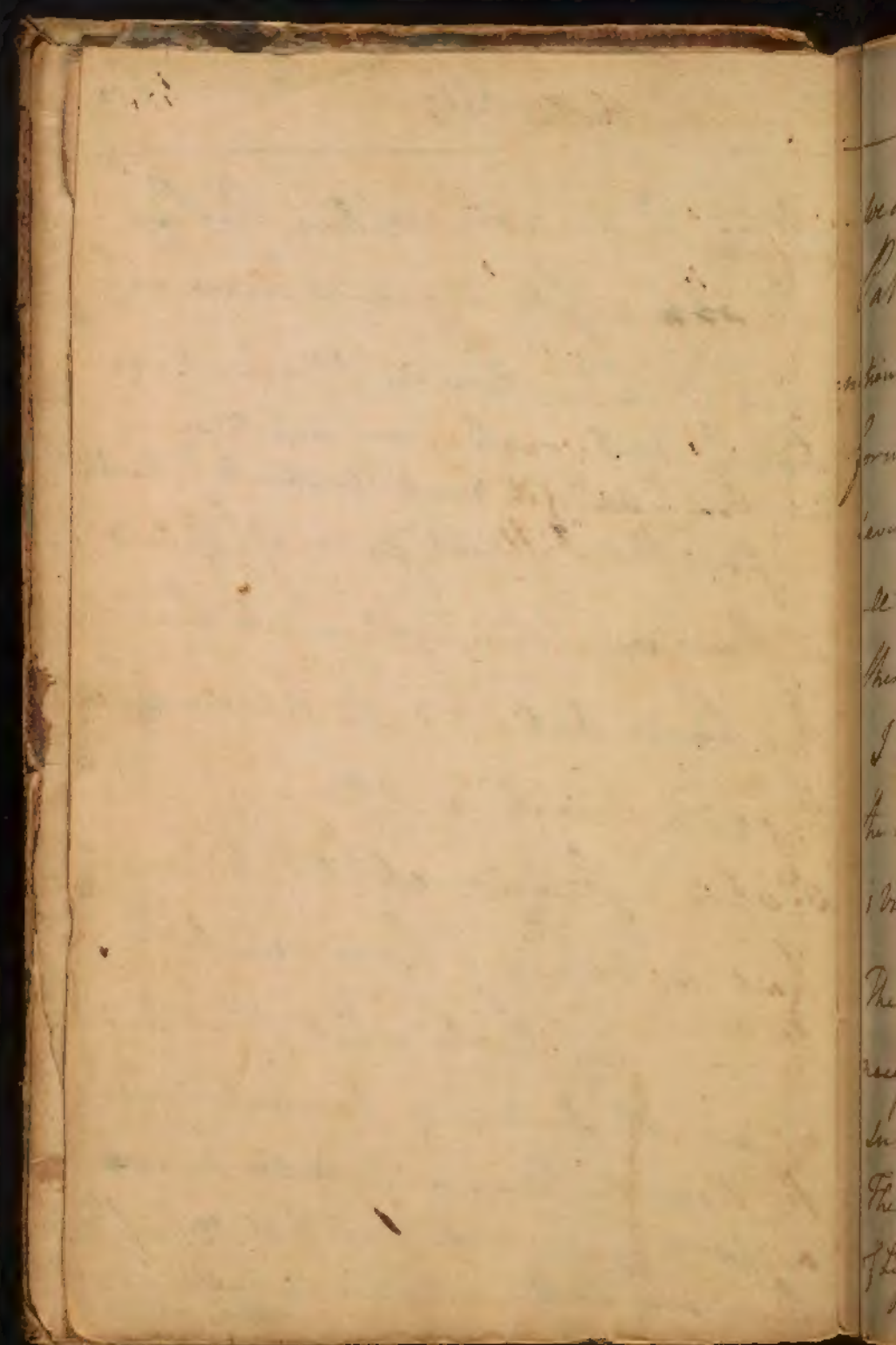
Benjamin Trask



Alone ^y we can explain the Pain
ⁱⁿ ~~it~~ ^{is} felt sooner & more in ^{the}
 Head in Lower than in other parts viz:
 from ^{the} ~~the~~ ^{Heart} rushing more impetuously
 into it on ^{the} ~~the~~ ^{Account} of its direct Situation to ^{the} Heart.

2. upon the different States of ^{the} Blood
 in the circulating System, so that if
 one part is obstructed. the Blood will run
^{the} ~~it~~ ^{with} greater velocity in Others.

3. upon a Stimulus applied to particular
 parts or relaxing powers applied to
 them. This finishes what I had to say
 upon the Doctrine of proximate Causes.
 The Remote Cause, or potentia remota
 ought to come next, but I shall pass ^{it}
 them over ^{here} as they will come in better in ^{the} ~~the~~ ^{Methodus Medendi}.



we come then to treat of the III part of our
 Pathology viz: of Symptoms. for a Defi-
 nition of Symptom recollect w^{as} said
 formerly. They have been divided into
 several Classes, but we shall reduce them
 all to w^h are called "Actiões Lase" and
 then I shall consider on a general plan.
 I shall in treating upon these Actions follow
 the ordinary Division of the Functions in
 1 Vital 2 Natural & 3 Animal

The vital are those ^u are more essentially
 necessary to Life, & w^{out} ^u w^h Life cannot
 subsist.

The natural are necessary to ² $\frac{1}{2}$ part
 of Life but not so much so as ² $\frac{1}{2}$ vital. They

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are employed in supporting the Form & Fabric of the body.

The Animal are those Functions^{ch} w: Animals have, w^{ch} disposes them to act on bodies & to be acted on by them. or in other words they are the Organs of Sense & Motion & are common to all Animals as well as man.

we shall begin w: the last, & 1: we shall treat of the Symptoms of Sense, or of morbid Sensations. the first & chief of these is Pain & Anxiety. these are ^c most general & important of any of the Pathol^y we shall begin w: the first.

Pain. this is a simple sensation &

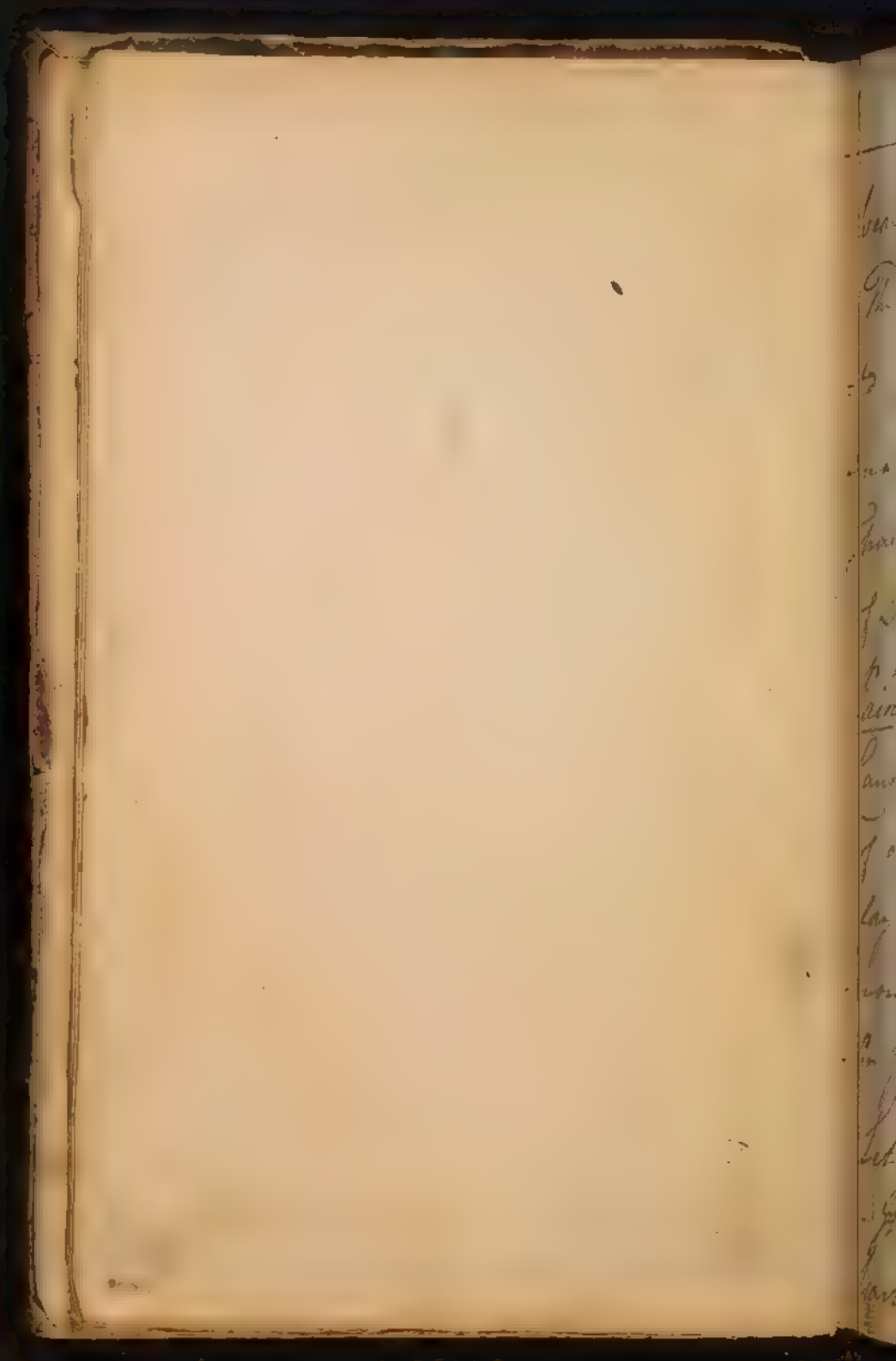
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Therefore cannot be defined. Some Philosophers
 : know Quas "Molestum non afflic" are
 said to be painful. This may be divided
 into 1st disagreeable 2 uneasy & 3 pain-
 ful. The disagreeable are of 2 kinds
 : 1st arise from the quality of other
 bodies such as Colours. Tastes &c. or from
 those sensations we receive from our
 Organs of Sense. Smell. Heat. Melling &c.

The uneasy & painful are distinguished
 from the disagreeable by being referred
 to a sensation which exists in our own bodies.

The uneasy are more or less vague & not
 limited to any one place such as Coughs
 in the Head. Oppression in the Breast &c.

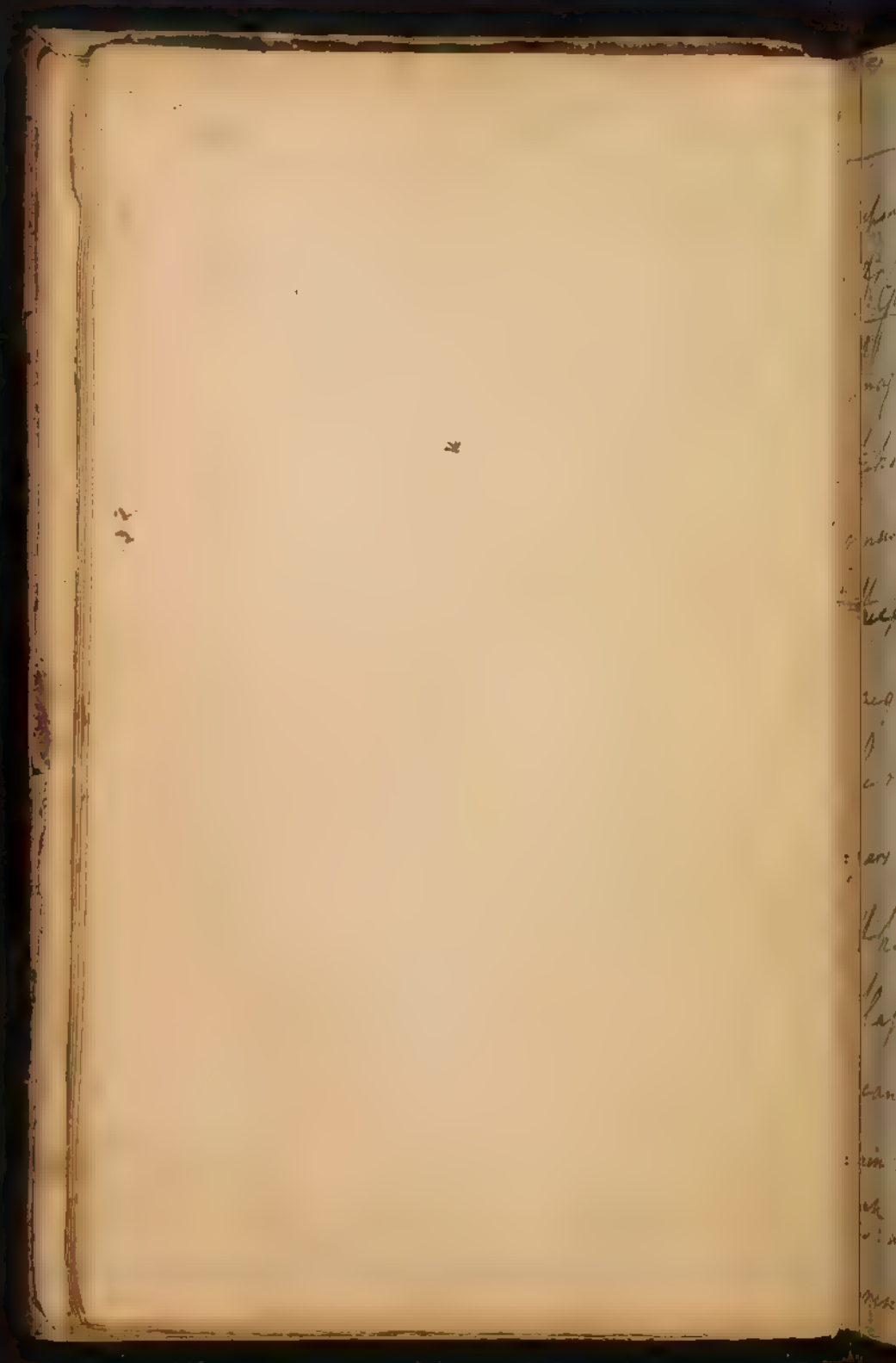


bearing in the limbs.

The painful sensations are always referred to one part sometimes to a very small part & seldom occupy large space. It usually arises from a sense of difficulty in $\frac{2}{3}$ exercise of motion. It arises from circumstances which accompany labour to produce a difficulty in $\frac{2}{3}$ removal of our functions. This is all we can say on the distinction of pain. For a more precise meaning of it I must refer you to common experience.

Let us now enquire into its cause.

It depends on the condition of the part to which we refer the sensation.



depending upon some actual cause affecting it.

Dr. Crusius supposes, & says that there are

imaginary pains. But in this his opinion

is taken. We cannot have the idea of pain

renewed in our memories. ~~with~~ ~~the~~

~~the pain renewed~~. The ideas of it we

acquire by smell & Taste cannot

be renewed by the memory. Pain ap-

pears to be an idea of the same nature

& happy for us it is so, as is ^{much} ~~is~~ ^{of} the

Happiness of Life depends on it. we

can renew upon our memories. Yet,

certain means of representation. Disqualify ⁱⁿ ~~tion~~

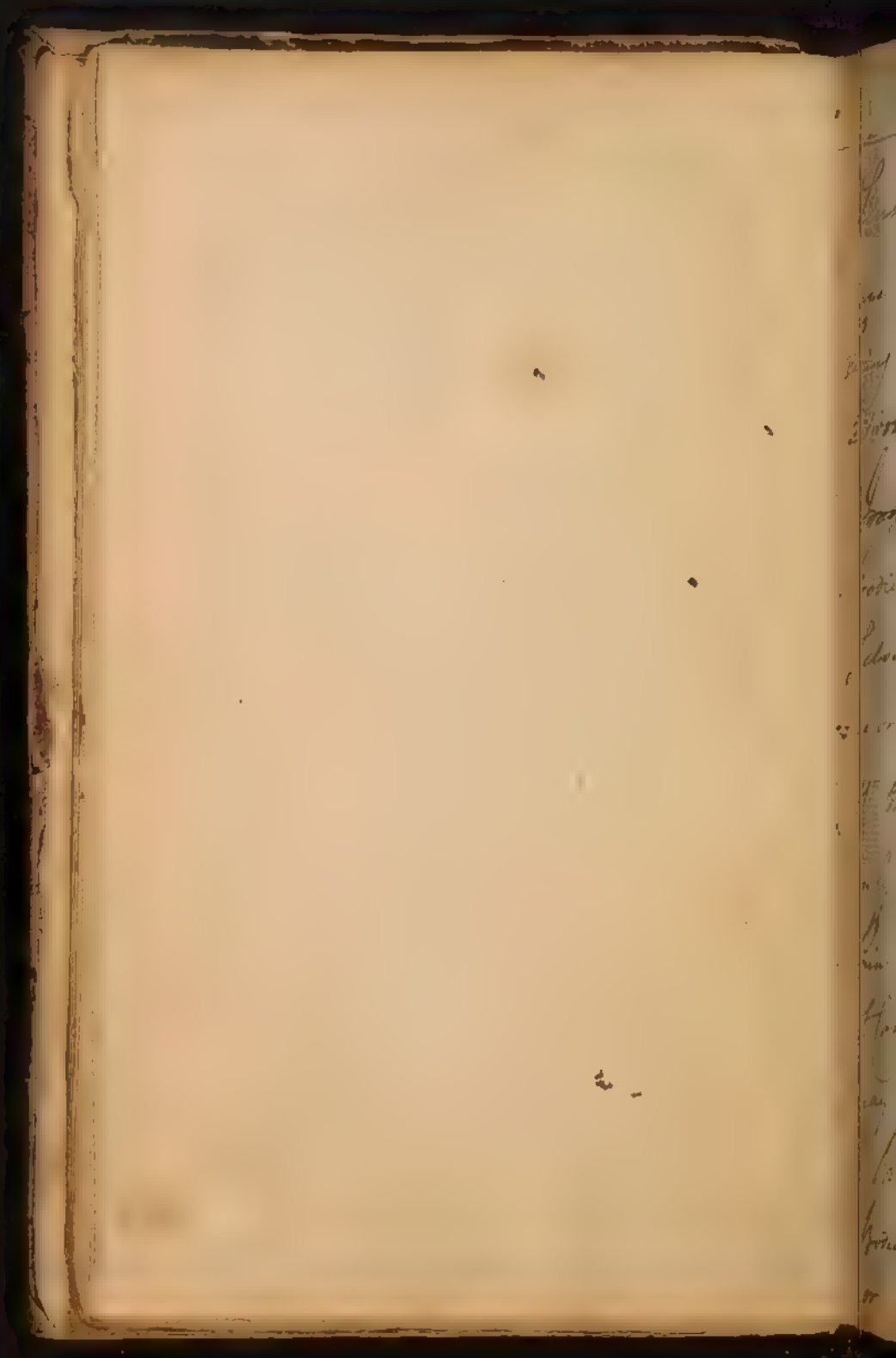
we are formerly felt, but we never can

renew that precise sensation we felt

(c) The pain felt in an amputated
limb depends upon an error in Re-
ference, & not upon an Affection of
the limb action, or upon any Change
induced in the Brain.

in Pain made by the Force of Imagination.
 - If we the Idea of pain is renewed
 in sleep or at any other time it must
 be only by means of certain arbitrary
 Signs. If ever we dream of feeling pain
 a real Pain must attend this - as
 repeated Experience has often taught me.
 w. Regard to the Poet: See. 14.

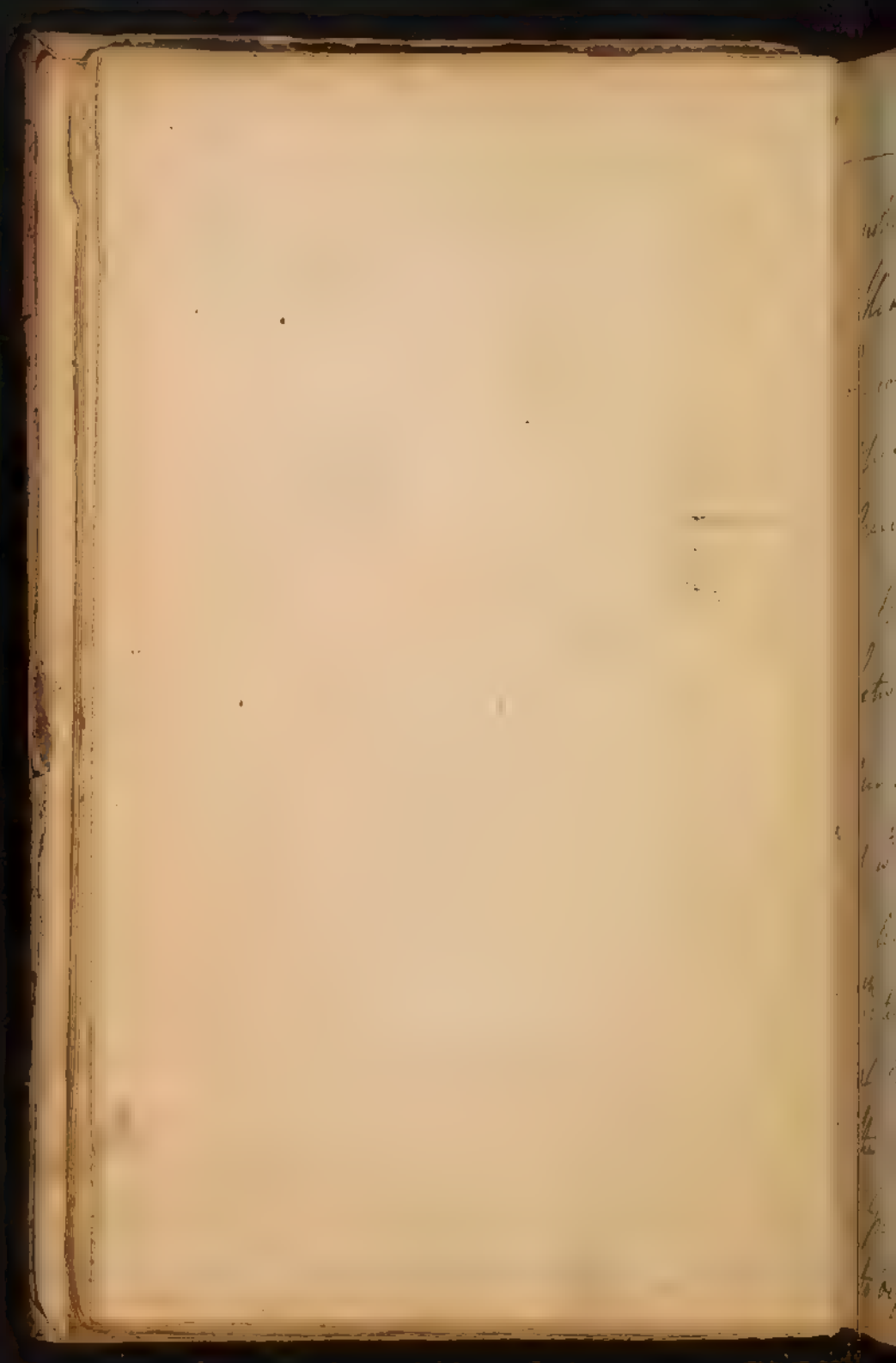
What is the Condition of the heart w. pro:
 duces Pain? - very Impression of a certain
 Degree of Strength gives Pain. The Force of
 sight sometimes brings on a Pain in the
 Eyes. Intensity of sound likewise often
 occasions Pain in the Ears. But both
 these Impressions may be reduced to the



Sense of Pain as the Eyes and Ears
are affected with them in consequence of the
same Organ of Touch as well as Organs of
Vision & Hearing.

^{the following}
Of Pain ~~is~~ ^{is} ~~an~~ ^{on} external
cause. ~~It~~ ^{It} ~~is~~ ^{is} ~~an~~ ^{is} ~~an~~ ^{an} ~~internal~~ ^{internal} ~~cause~~ ^{cause} ~~to~~ ^{to} ~~our~~ ^{our} ~~system~~ ^{system}.
To this we ~~now~~ ^{now} add every part
of the system. ~~It~~ ^{It} ~~is~~ ^{is} ~~an~~ ^{an} ~~internal~~ ^{internal} ~~cause~~ ^{cause} ~~to~~ ^{to} ~~our~~ ^{our} ~~system~~ ^{system}.
Pain depending on a tendency to solution
of continuity but even those of rupture
may be considered as the cause of pain etc.

Pain may likewise depend on sharp
bodies tending to cut fibres in pieces
or upon corrosive bodies which tend to



without the Feature of the Name.

That which in deep sleep may be ^{considered} as a cause of ~~the~~ ^{Pain} ~~now~~ ^{do so} they alternate? by ^{modifying} or ^{preparing} the Power? I shall not answer this yet.

But there are ^{as} Sensations ^{as} an ^{ambiguity} ²⁰⁰⁰ between painful & unpleasing sensations. Such as Hunger-Thirst. Pruritis &c of which we shall say more hereafter.

All the ^{causes} of Pain may be ^{reduced} to ^{three} ^{things} ^{as} ^{we} ^{tend} ^{to} ^a ^{Location} ^{of} ^{Continuity} ^{could} ^{produce} ^{it} ^{Cold} ^{if} ^{these} ^{appear} ^{to} ^{act} ^{by} ^{urging} ^{the} ^{Nervous} ^{Power} ^{upon} ^{the} ^{Sensations}.

In tense Pain of all kind appears to depend on Indistinction, the various

was on the drawing of a dog.

4th 3rd Pain. The 1st takes place in the
 helical system. the 2nd in ^{certain} ~~various~~
 swellings, & the 3rd in the ^{of the} ~~helical~~ ^{helical} system.

No Judgment can be formed of the
 internal pain from the ^{of the} ~~helical~~ ^{helical} system of it is:

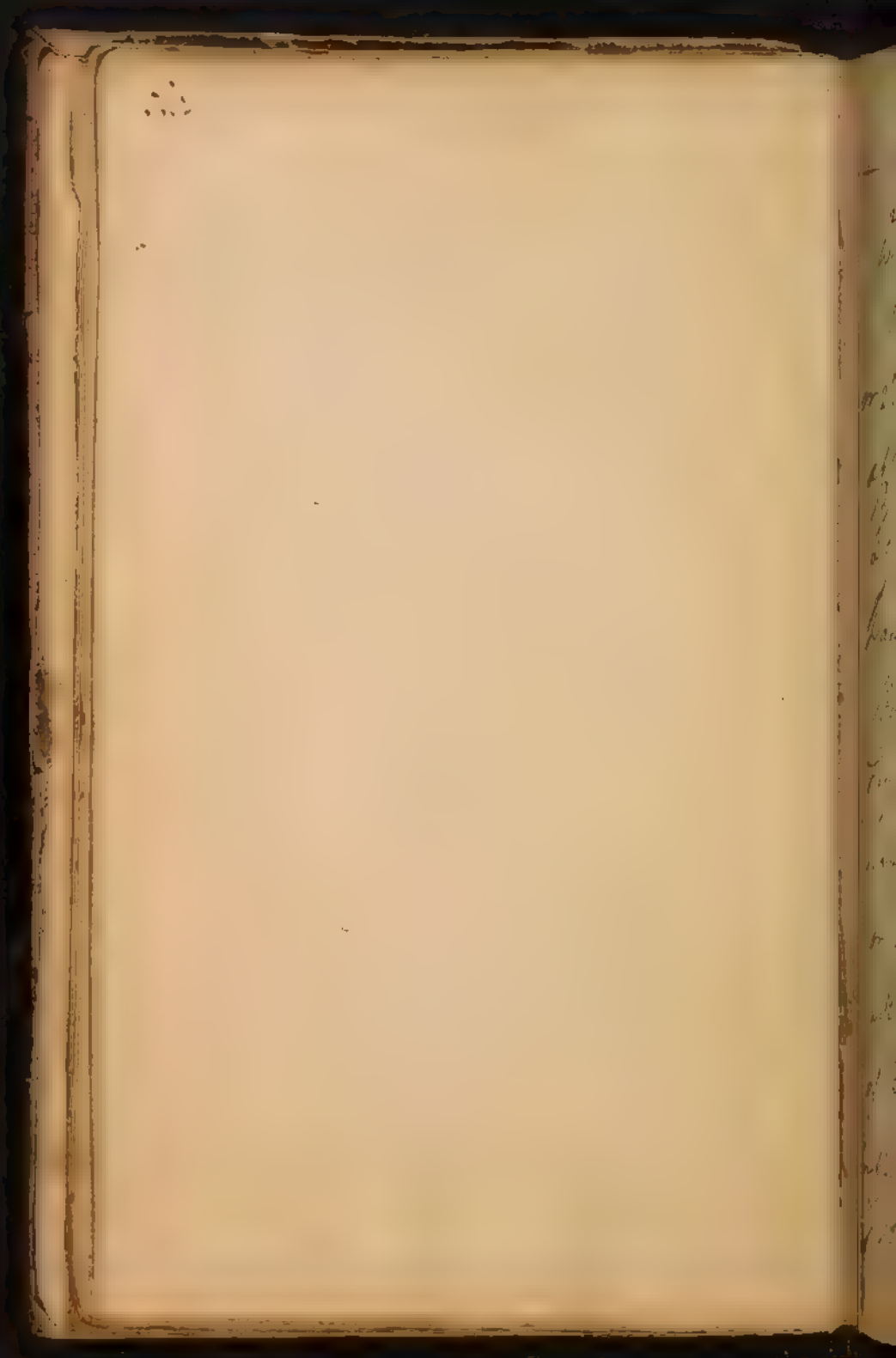
Pain arising from external causes. the
 Pain in the Port resembles a Pain in:

also in some boring Instruments, which it depends
 upon nothing else but blind overdistending

various tubes. — But there are pains
 from internal & external which have a greater

relation to each other. I say there is not
 the least common cause in 4th places which

create them. This depends upon a subtilty
 of we cannot explain.

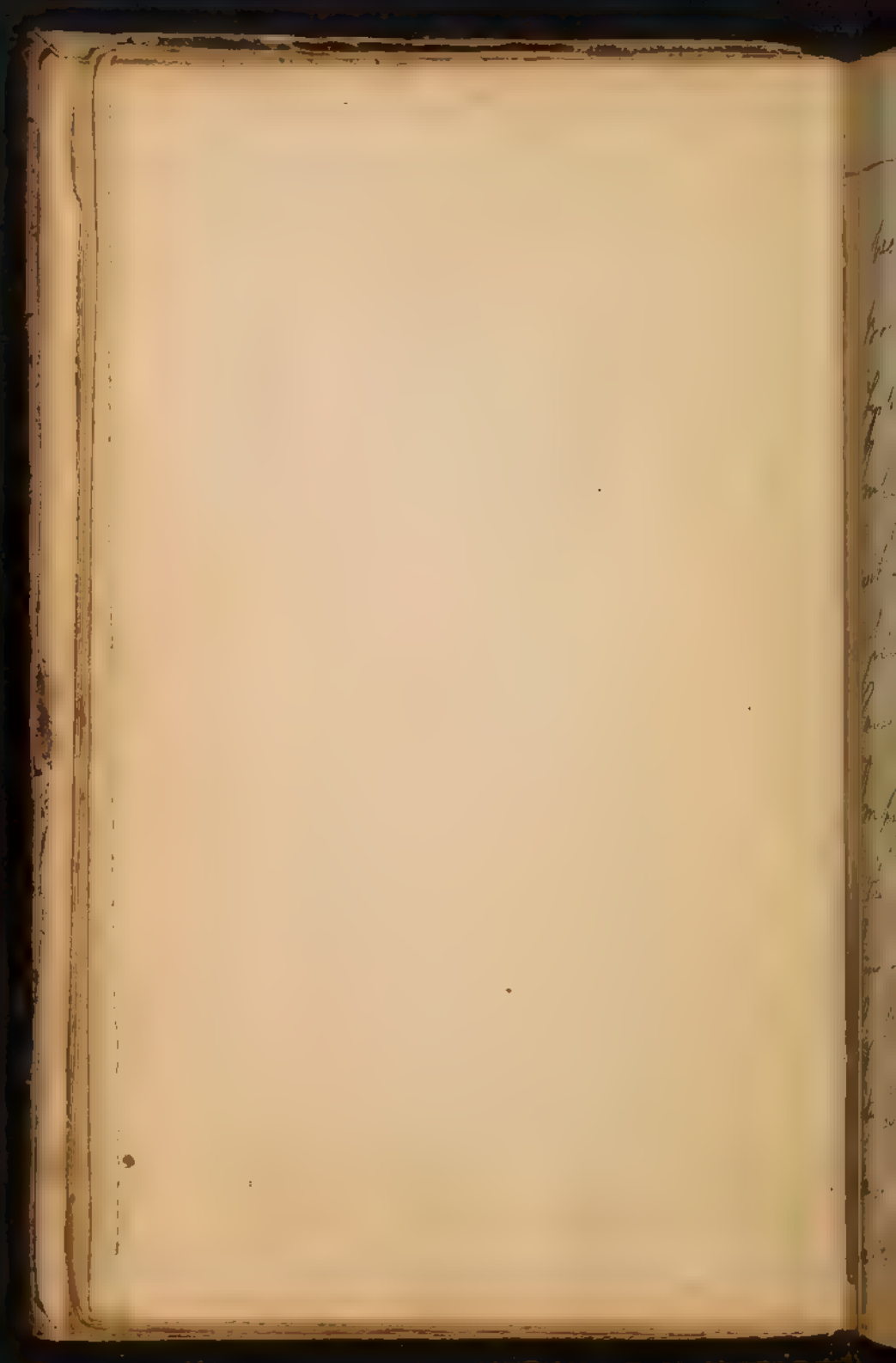


Q. Does the Degree of Pain depend on?

either upon 1st the Force of Impression
or 2nd upon the Sensibility of the Part

affected. Dr. Gaubius supposes its
Degree is always proportioned to the
Danger ^{tho} it threatens the System.

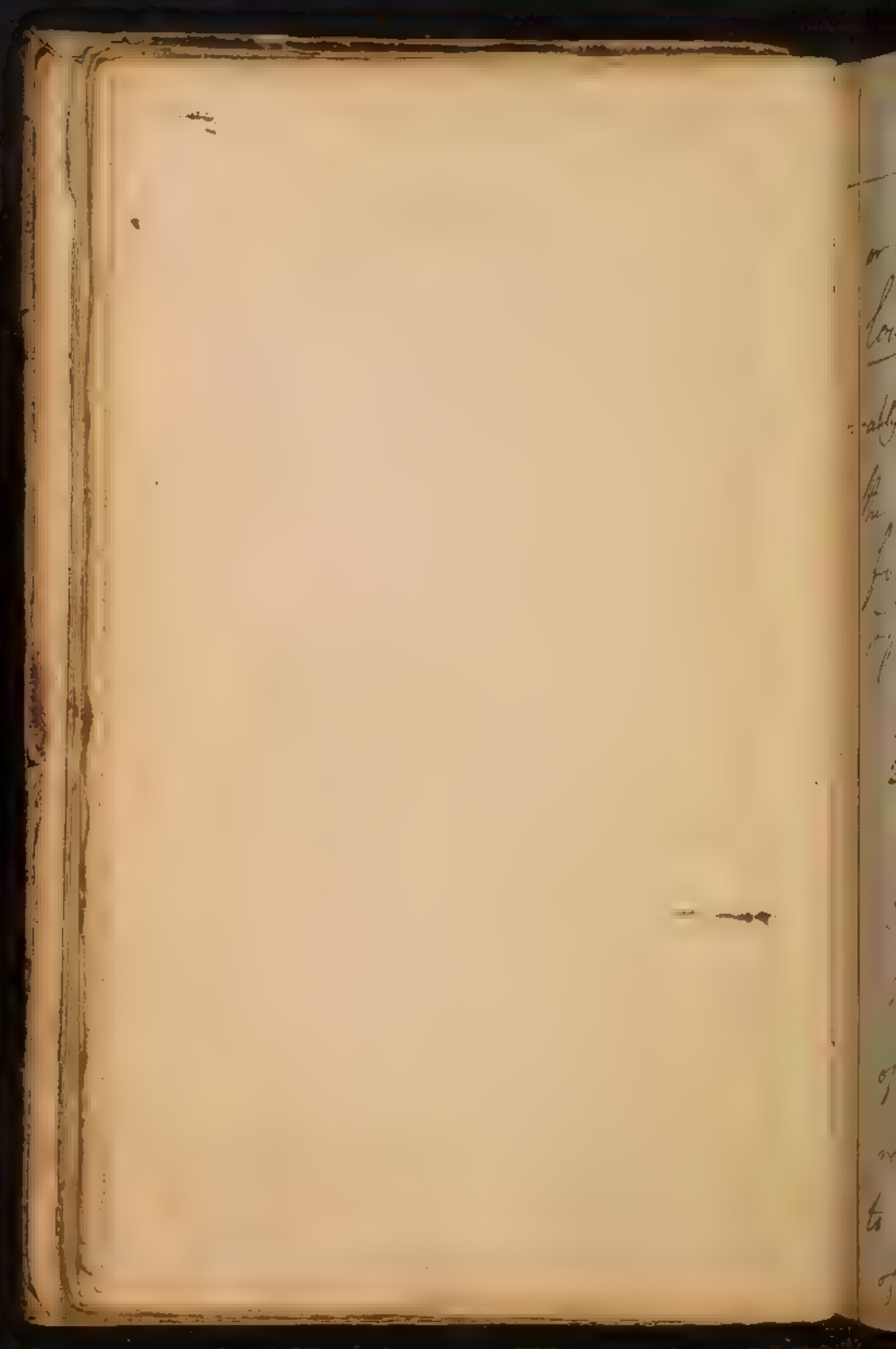
But this is not true. For in cases of great
Sensibility in particular Parts we
have the most exquisite Pain with little
or no Danger. The Degree of Pain then
will depend chiefly upon the Irritation
of the Part. How far the Force of Im-
pression may influence the Degree of Pain
I shall not enquire here.



Anxiety

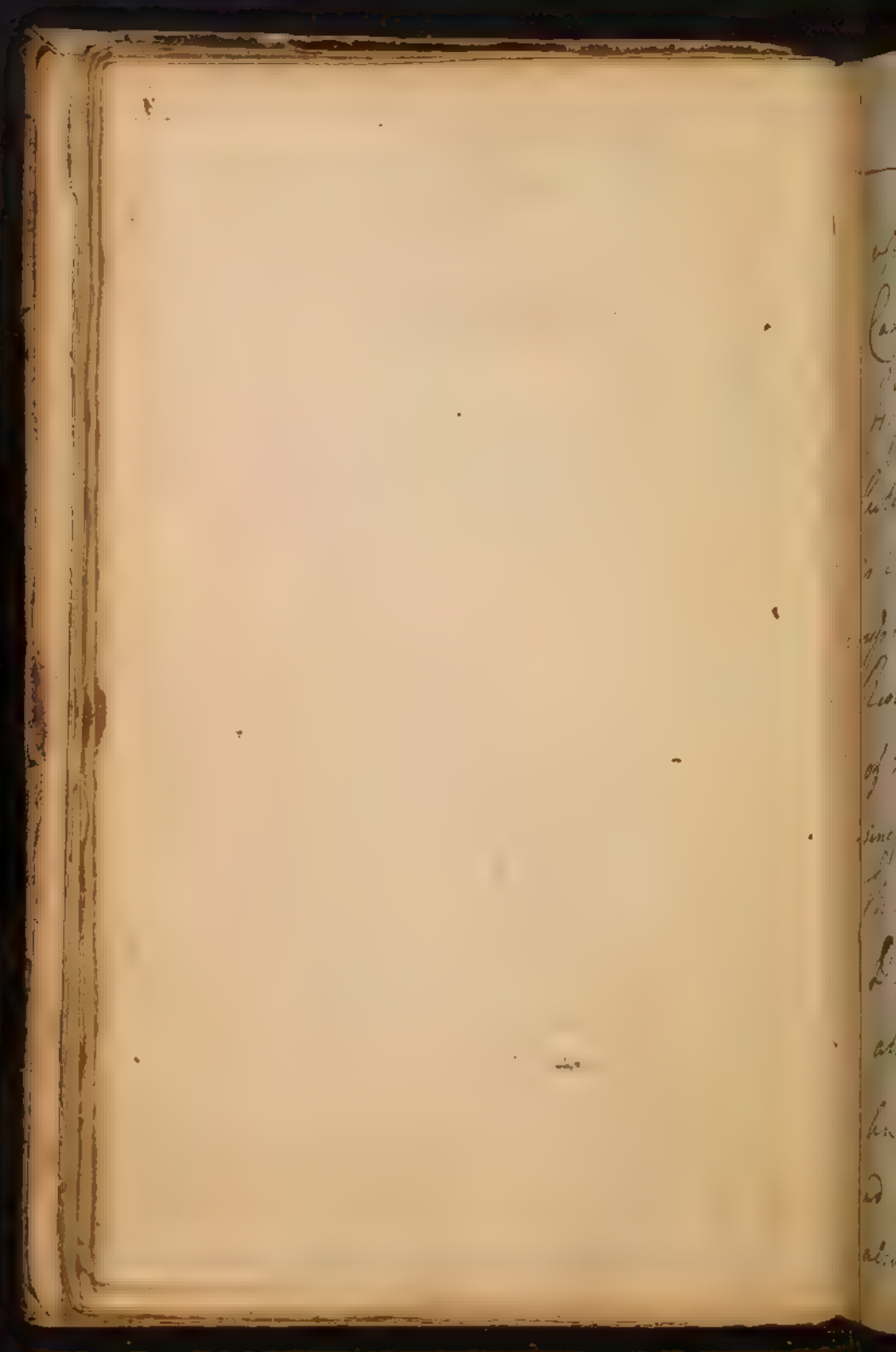
We come to speak of Anxiety: all
bodies act either externally upon the Nervous
System. ^{we} know a faithful source of
Impressions but there may be Impressions
without our being able to refer to the
place where the Pain is seated or the
Cause ^{we} excites it. Pain depends upon
Impressions external to the Nervous System.
The "molest sensations" belong to the last
kind of Impressions ^{we} shall distinguish
by the name of Uneasiness instead of An-
xiety ^{we} I think includes too much. ~~Pain~~
Pain is attended ^{the} with aversion & an effort to re-
move its Cause, whereas Uneasiness is attended

the but a action. Efforts to remove it, such as fastening or Restlessness and Inquietude. But there are certain sensations ²¹ which do not rank with painful or disagreeable as the Appetite of Hunger. Part 11. Let us now enumerate the various species of Unconsciousness. The chief example of it is ²² Insensibility which arises from the Nervous System universally ~~affected~~ considered. When it is in a proper state, Clarity, Gaiety, Confidence & Courage succeed, but when it is in a contrary state, Mourning, Idleness, Fear, Hesitation, Premeditation, Doubt & Despair always succeed in a higher



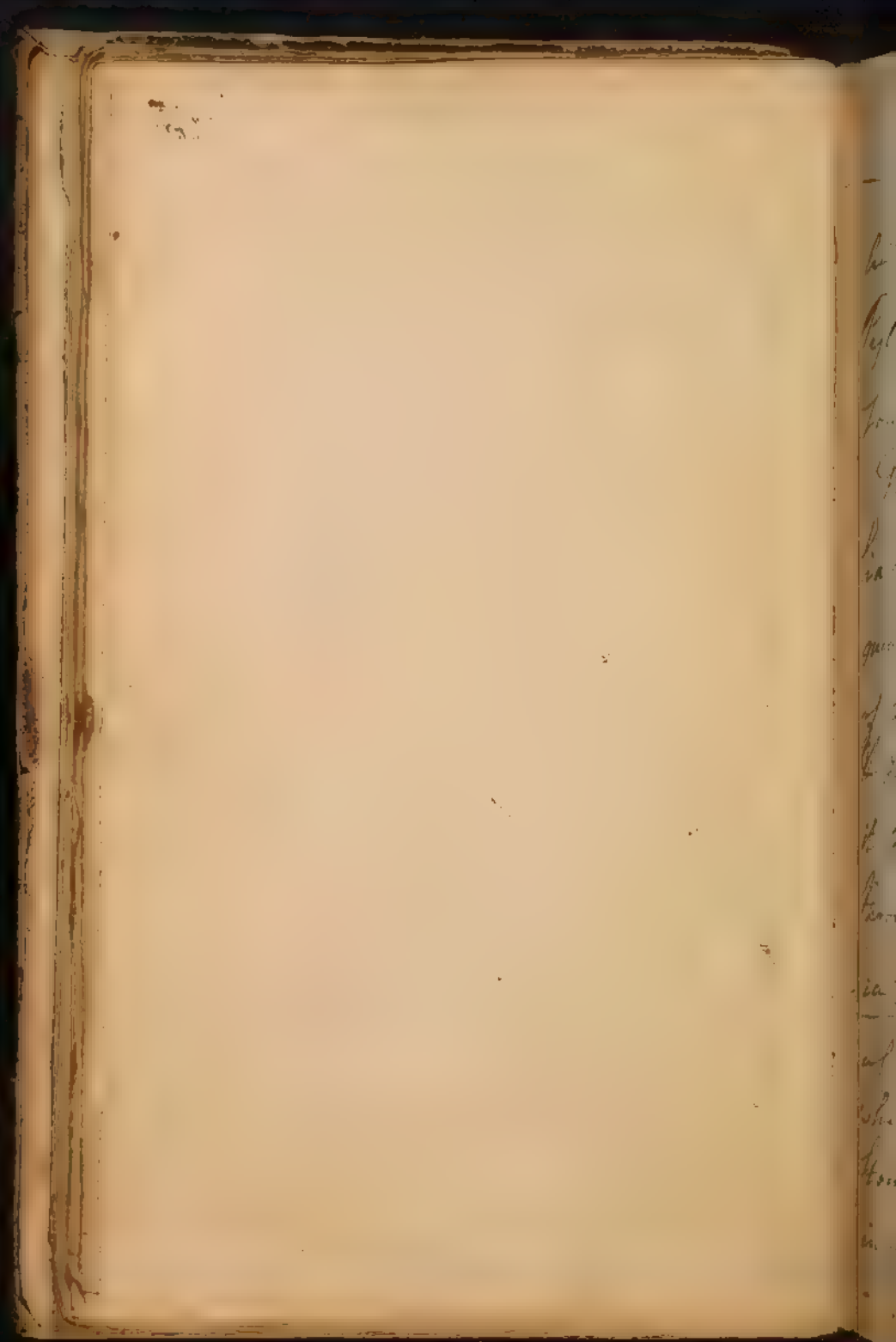
or lower Degree. this is general called
Lower Spirits. & differs you see considerable
 in Degree. you may easily know
 the Causes of these Sensations from what was
 formerly said on the Laws of the Nervous
 System.

- 1st Species is Interruptⁿ in Thinking
- 2nd Uneasiness from difficult Respiration
 called an Oppression on the Breast.
- 3rd Uneasiness from difficult Action of
 the Heart depending on a weakness
 of the Heart itself or Resistance to its
 ready & free Evacuation. It is impossible
 to distinguish when the one or the other
 of these takes place. Syncope depends



upon the fact. the last occurs in
Cases of Polypus.

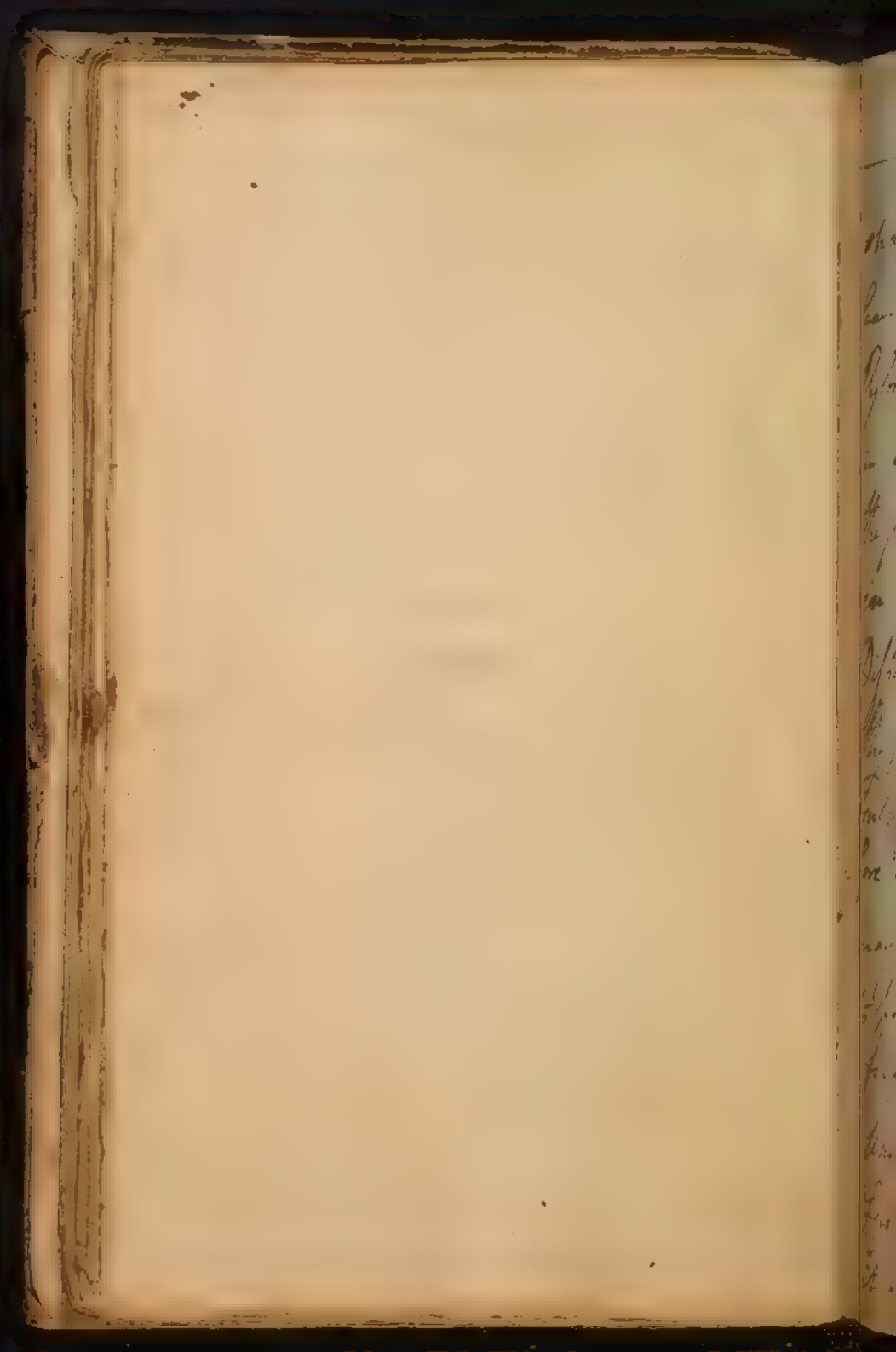
It arises from an internal
action of the stomach, occasioning what
is called "Egrotudo". This species of Anacrisis
occurs more frequently than any of the
Rest from its connection w: every part
of the system. In its condition does Anacrisis
depend when it arises from the
stomach? This subject is involved in
Darkness. much Difficulty is often
attended w: a cause of Anacrisis. The
Anxiety of Hypochondriacs to be refer-
red to this source. But it may arise
also from a sense of its distance to its



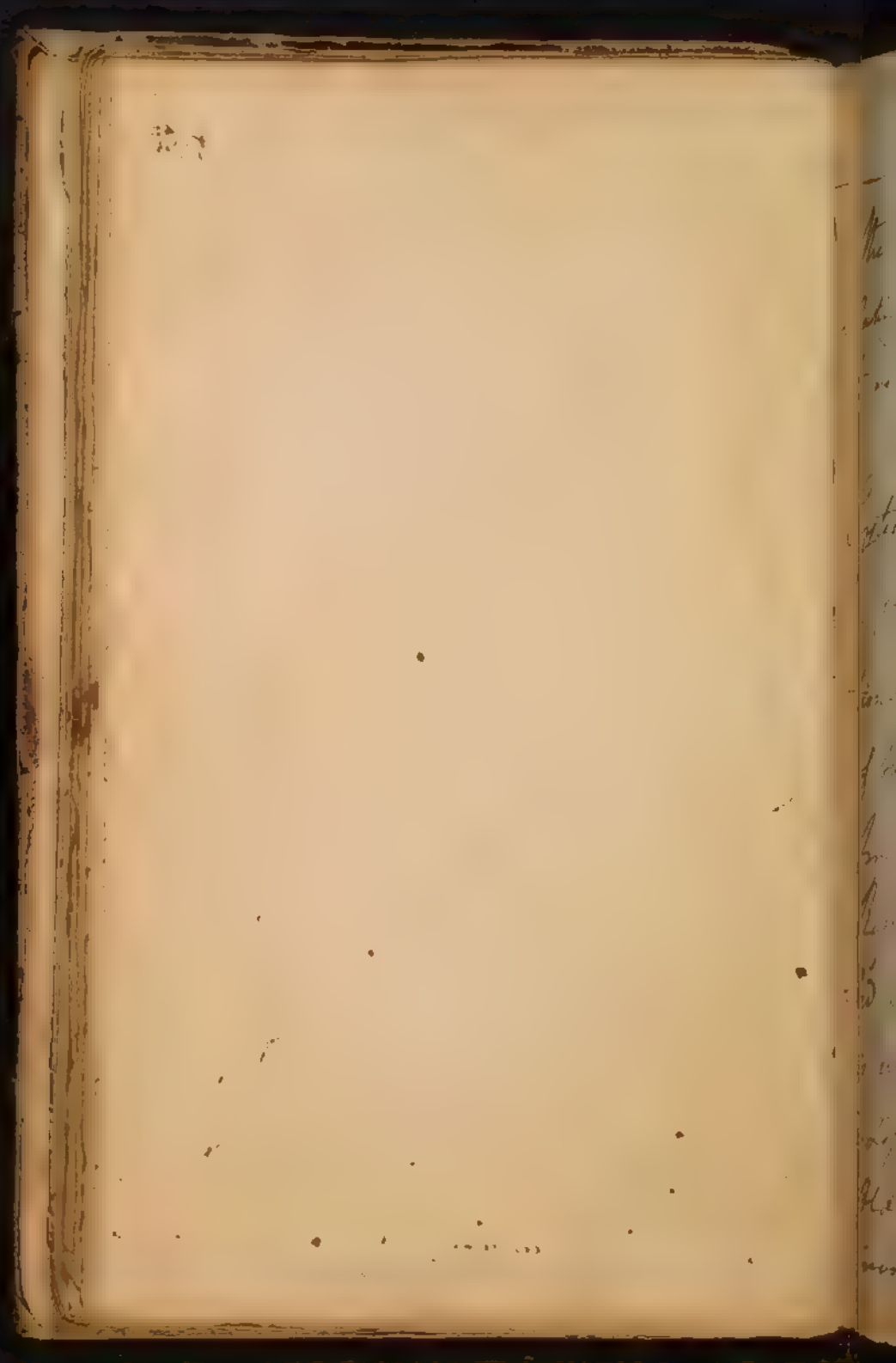
action such as a constriction only.
 Pylorus. This is a short muscular
 part of the stomach in the stomach.

The Pylorus from its situation is very
 liable to these constrictions. The Cause
 of this is a weakness & invasion
 of the Peristaltic Motion of the stomach
 & Intestines. By pressing the stomach
 it ^{squeezes} the gastric juice which is
 thrown up & constitutes the Cardia.

Cardia Stomach. depending upon
 a constriction of the Pylorus especially
 when it arises from the pulsation of the
 stomach. Now is the stomach affected
 in Dyspepsia & in the beginning of Ulcer.
 - Is the Pylorus constricted now?



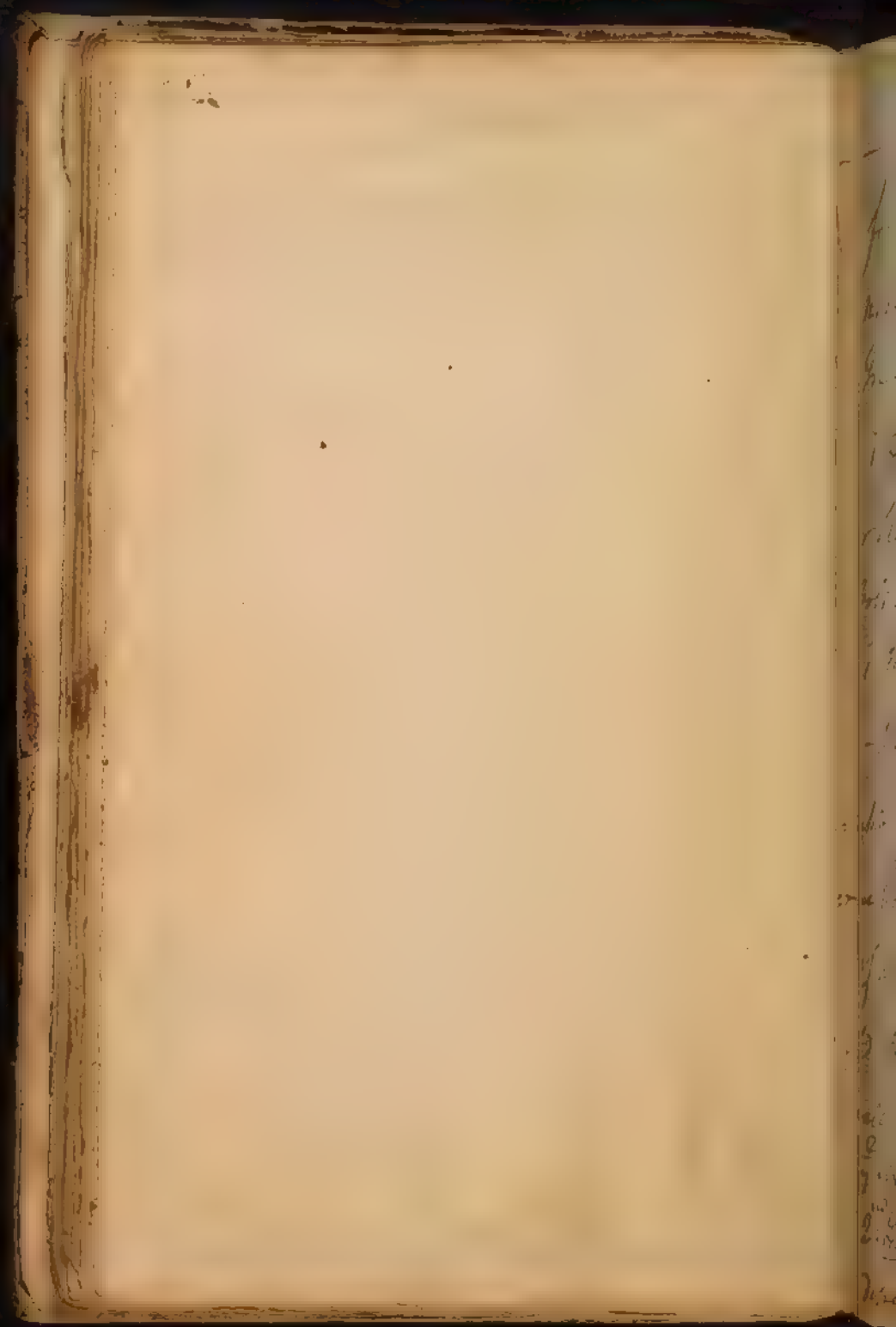
shall not answer this Question, but
leave it to you. I think the state of
Pyrexia should be more engaged into
in seeking for causes of Diseases in
the stomach. But again Anacrisis
in the stomach will depend upon a
Disorder of the blood, Transmission thro'
the stomach, or upon a greater or lesser
Arrest of its blood vessels. There are there-
fore 4 of the principal species of Anacrisis
may be other. But we have not time
to spend them But. It is to occur most
frequently more especially in Fevers: all
Anacrisis is Sedative in regard to
System & induces a general Debility upon
it. It is not so strong as to destroy



The System it afterwards proves frustrating. It produces an Effort of ^{the} System to re-raise itself.

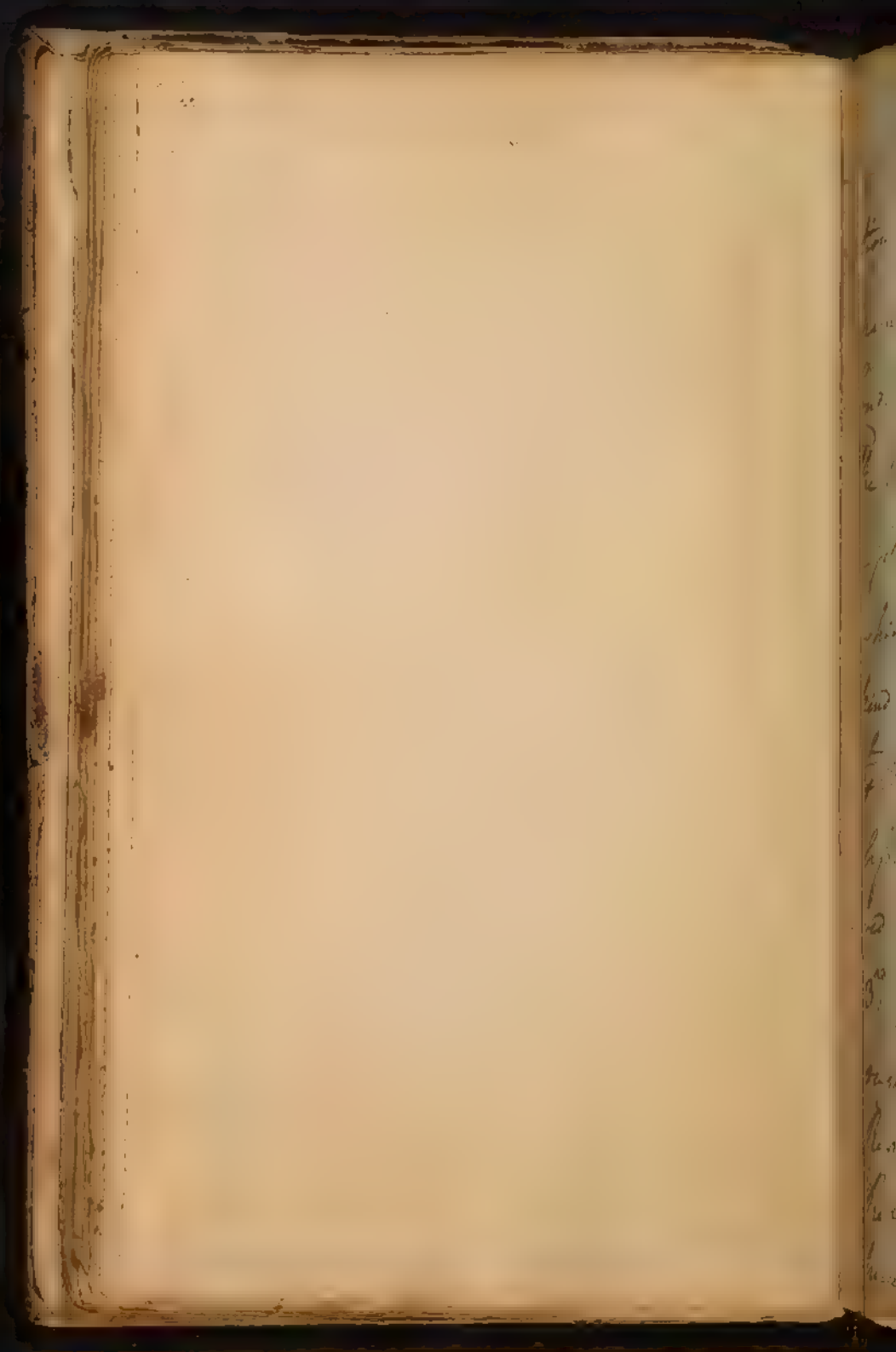
We can now to speak of the System of the Intellect: Faculties.

These are subject to great Irregularities. The first Instance of this is a want of sensibility to those Impressions we are designed to excite. Reflex sensations. In English this is called Indolence or Stupidity. When the Mind is unable to mark the Relation of Things a Loss of Memory is induced in Old age. The Causes of these are deeply involved in Obscurity, & I shall therefore



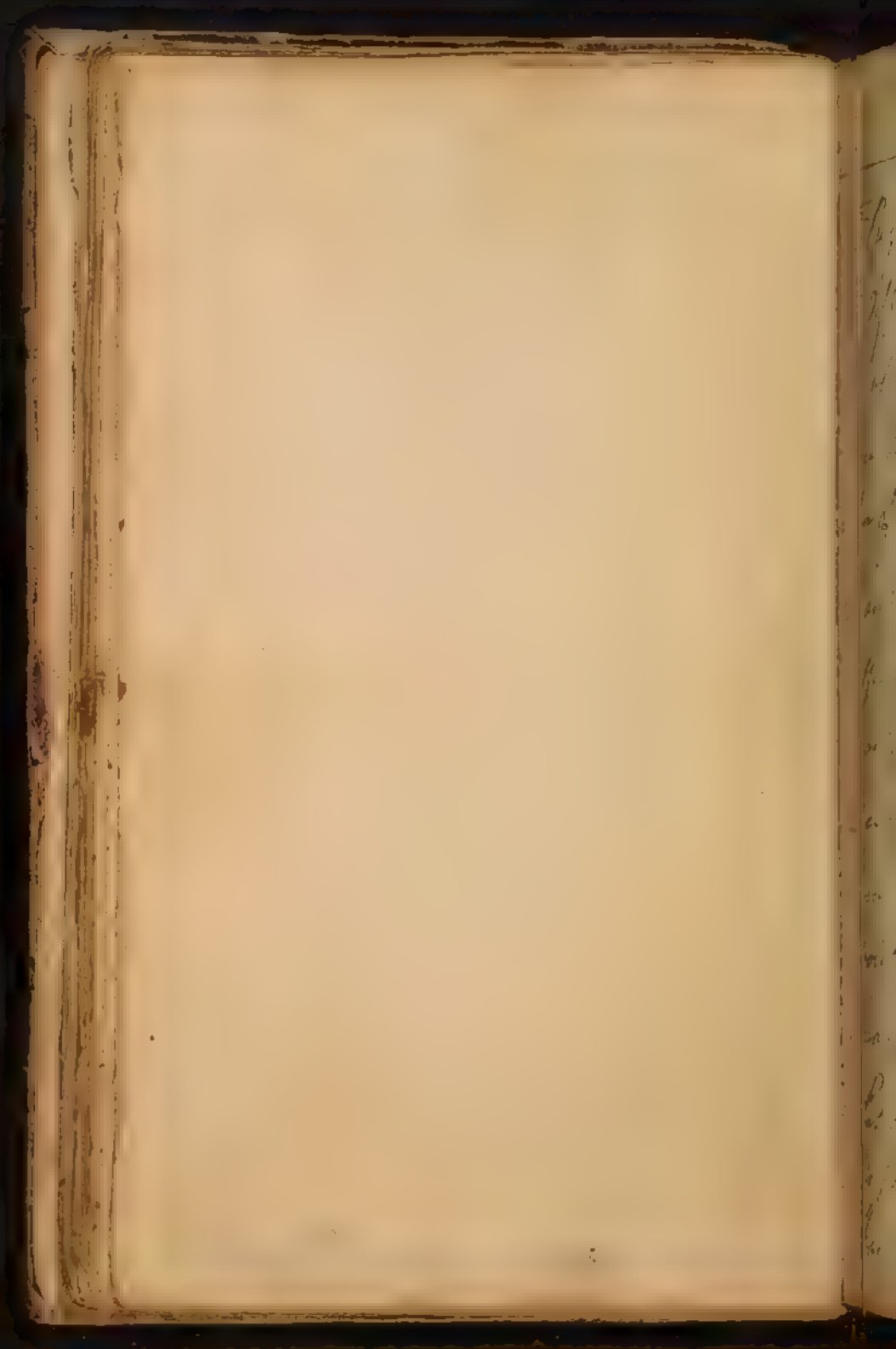
for as enquiring into them. we shall
most consider the frequency of our
Intellectual Errours. There are 3 kinds
1 False Perception 2 False Deduction
or Reasonings 3 False or unmeasured
Volitions.

1 All our Ideas arise from Impression.
- When that arises from present Im-
pressions it is called Perception. There is a differ-
ence between Perception & the mere Removal
of an Idea. Now when Objects are present
to the mind we are absent from it we
call it False Imagination, or a species
of vicarious Exercise of our Faculties.
2 False Reasoning. The Removal of Ideas
depends upon certain laws in their Operation.



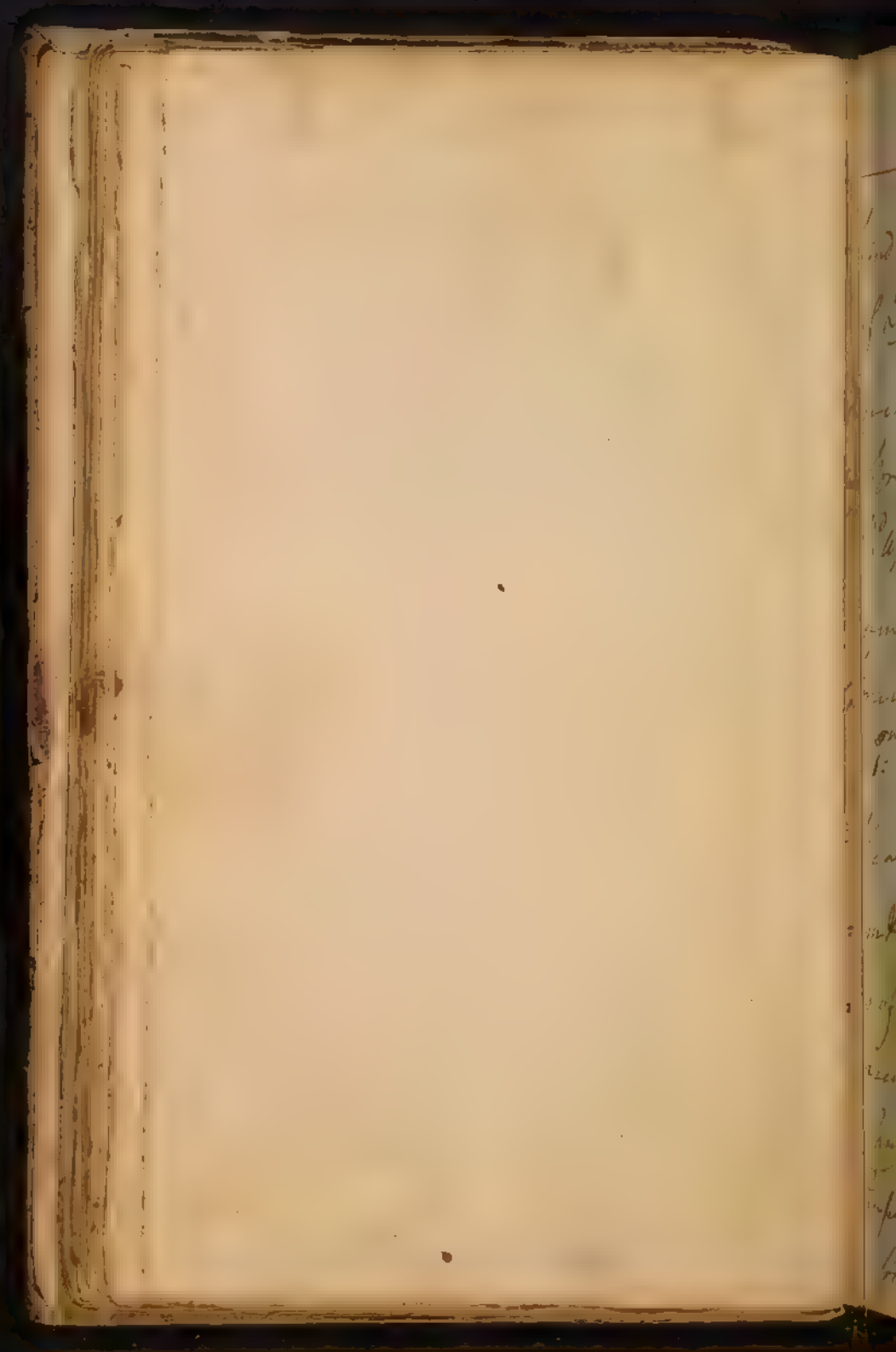
tion. This Association is of Faculty of
Memory. But it may be in various
Conditions: it is naturally founded on
the Relation of things. Every man forms
a set of Associations himself, & others too
which are common to the rest of Man-
kind. Now false Reasoning arises from
the Mind's not properly tracking these
Associations or Reasonings: or are Aberrations
used by every body in a limited

3.rd False or unmeasured imitation. Imagination
ought always to be derived from our
Reasonings, & sh^d be adjusted to the
Relations of things as commonly
perceived. There is of a standard



to regard to our Divine & Mercies, &
it differs a little in different Countries but
is upon the whole nearly the same all
over the world. an Insane then in the
idea of them constitutes Madness. if a
man is angry at a Person who never
offended him he is said to be mad.
if a man fears when there is no
Reason for it he is also mad. he
then we see is measured on false
notion. All is well! Madness
may be referred to one of these Heads.

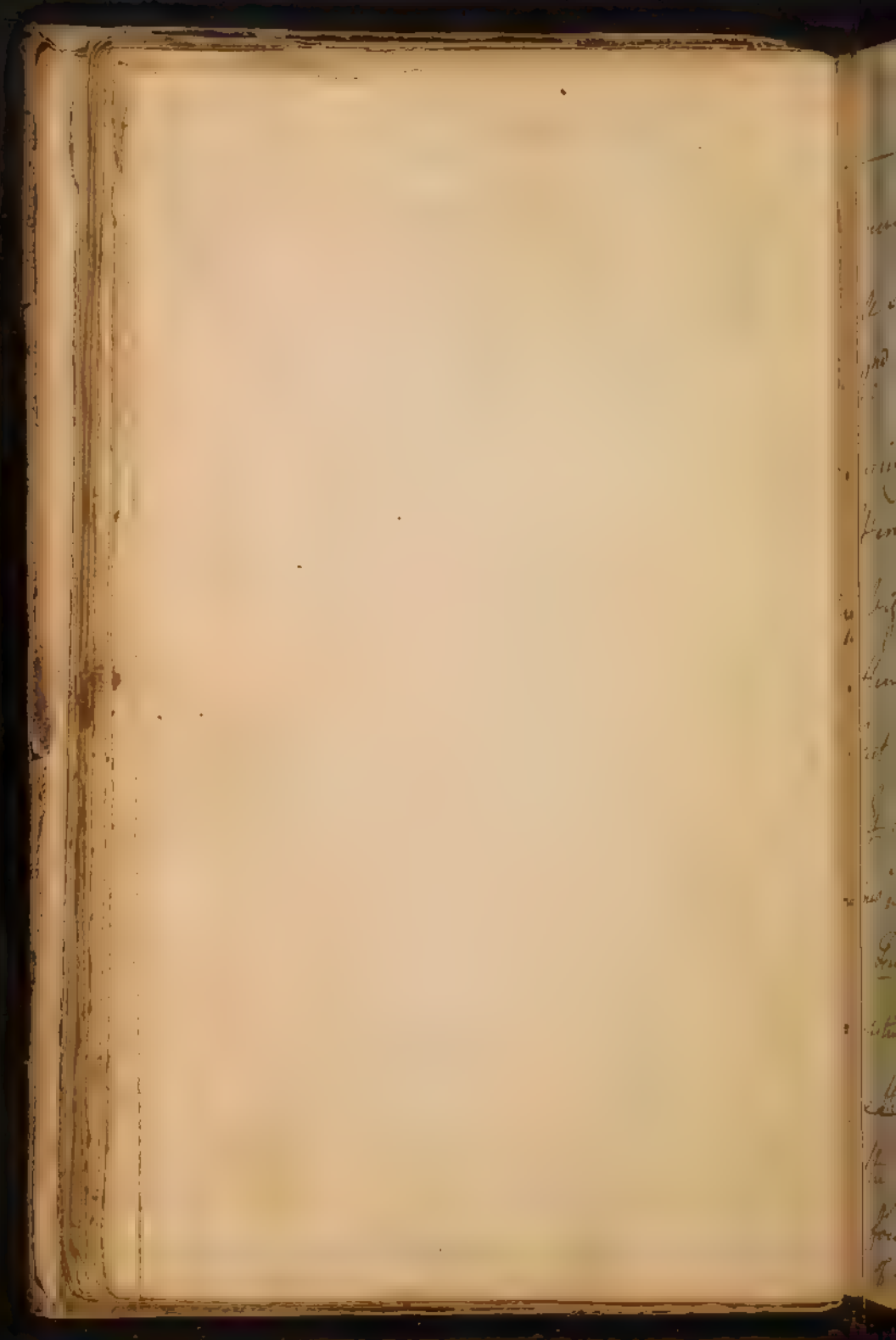
Let us now take notice of Madness
as joined to Fever. the word Delirium
has been employed to signify this.



kind of madness. There are two kinds
of Delirium depending on the
increased Impetus of the Blood in
the Brain.

1st Upon a diminished Resistance on
some Resistance in the Action of the
Brain.

2nd The case of Phrenitis belongs to this
kind. It is always attended with
an increased Impetus of Blood in the Brain. But it may
also occur in the hot Stages of Fevers. In this
case, it is attended with an increased
Impetus as the full Pulse - inflamed Eyes
throbbing temporal Arteries, &c

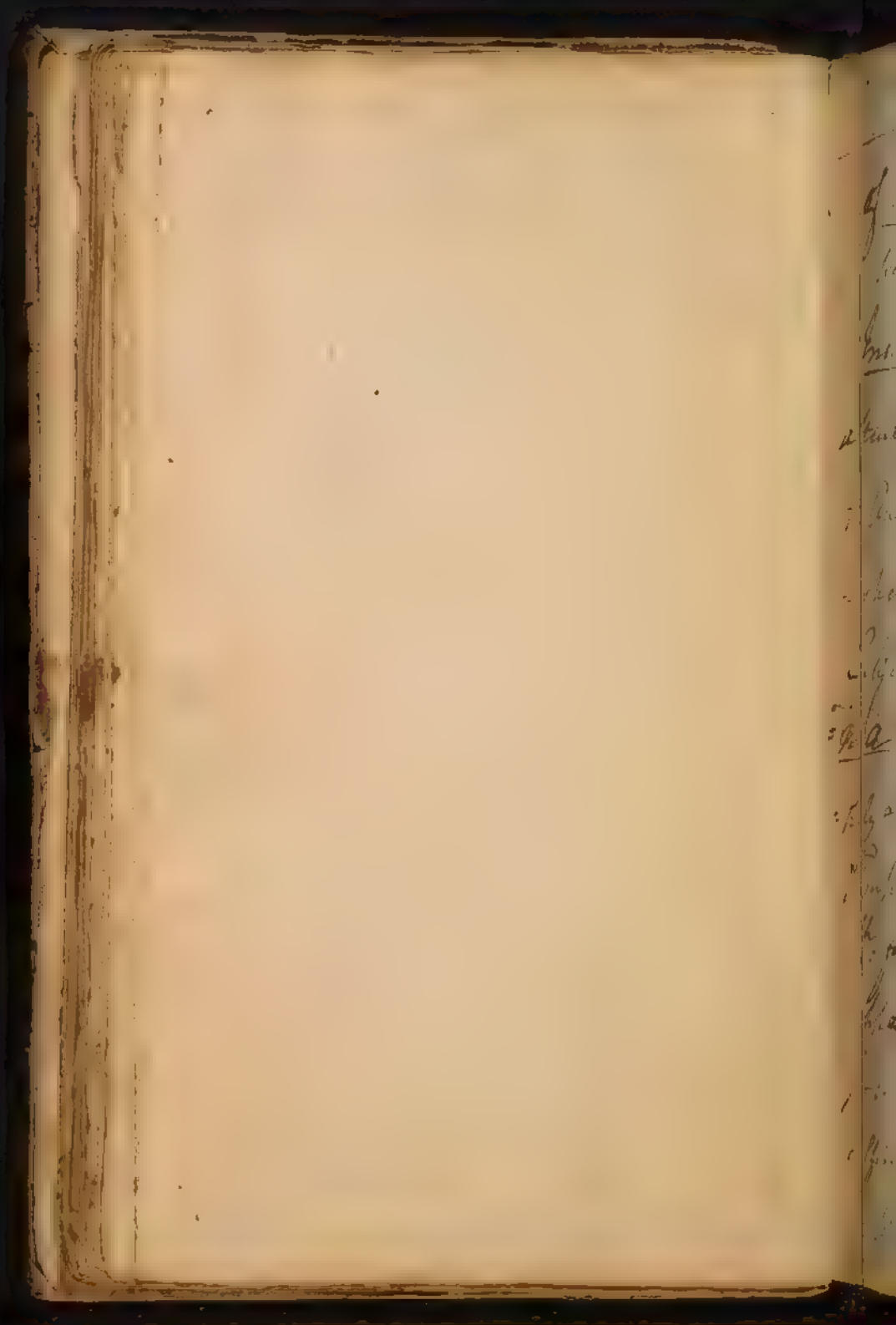


increased sensibility of the eyes & saw
all sufficiently indicate.

2nd We have undoubted proofs of Delirium
arising from this second cause. we
often find it in Constitutional Fevers when
the vigour of the hot & cold decline, and
attended wth some of those symptoms
last mentioned of increased Impulses.

It is moreover cured by Stimulat^g Medi-
cines w^{ch} is the Reverse of the former.

Delirium is generally employed as a Name
for the most of Delirium but it ~~is not~~
the fact is not always present in
the first nor absent in the last, there-
fore we shall not include it in our
of Delirium.

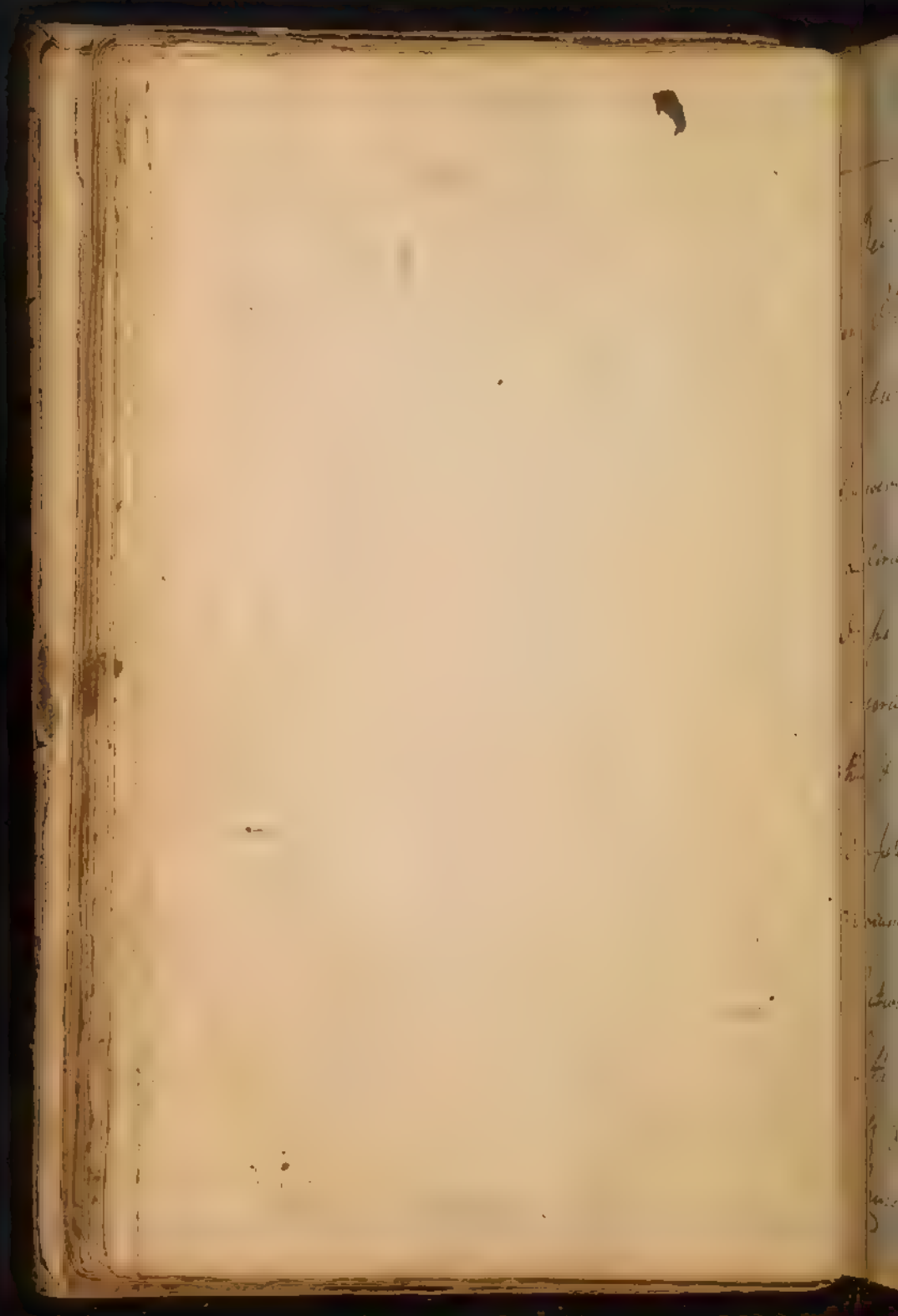


of Madness ^{the} out-Giver.

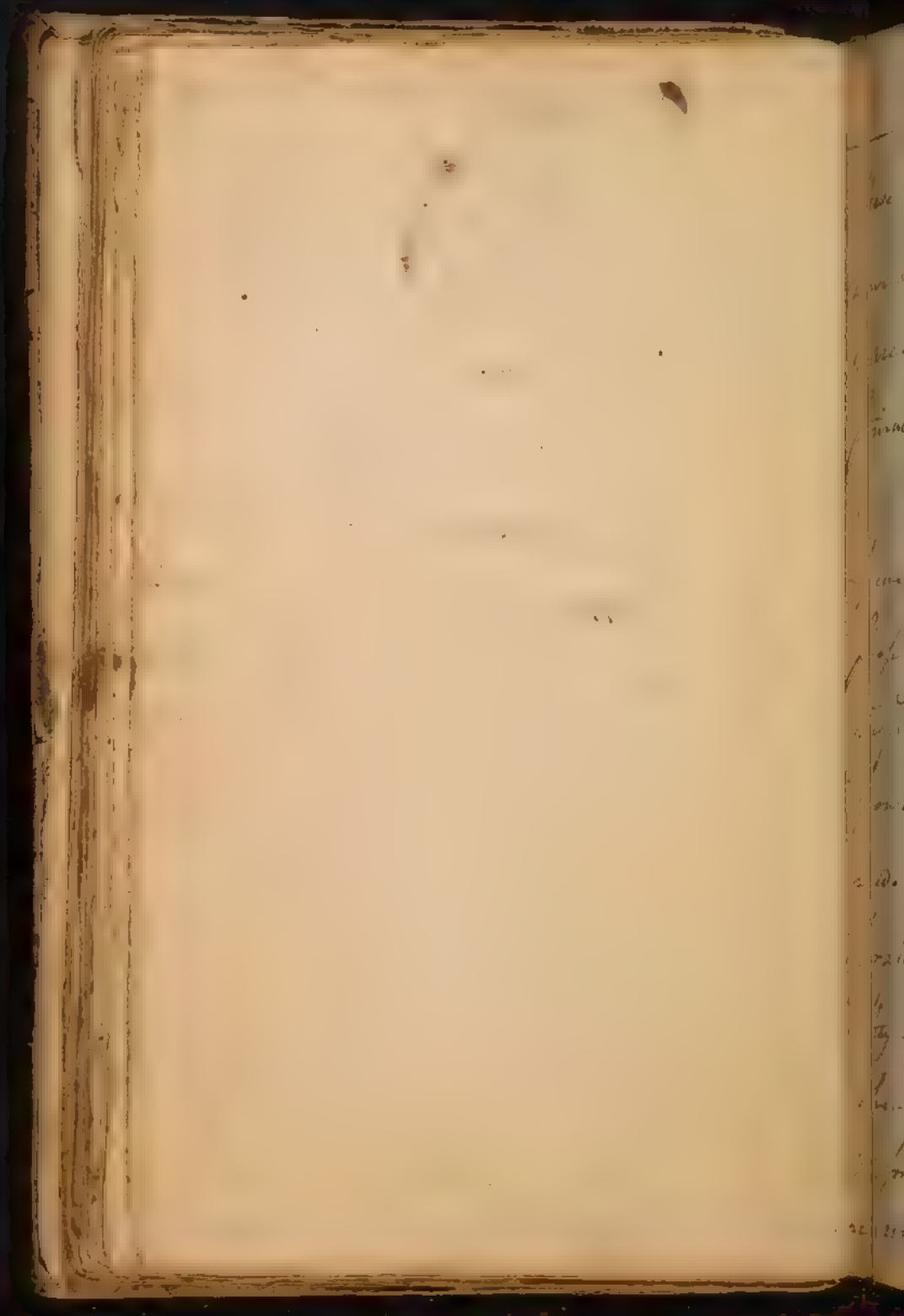
We shall call it Insania.

Insania is of two kinds 1st It is attended w. a ^{the} single delirium w. regard to one object only. 2nd When the delirium is general w. regard to all Subjects. This kind is generally called Mania. 3rd Melancholia, but impro-
perly as it is attended w. a contrary
Temper of mind to Exuberance & big-
ness of Imaginary Hopes. 4th Mania
apud doctores under a variety of names w.
It is not necessary to distinguish into
different Species.

What is the proximate Cause of



Delirium? This subject is involved
in obscurity, & the nature of the
disease of the nervous system. I shall
however attempt it. In the case of
Delirium it depends ~~on~~ upon increased
Impetus, but this does not act solely. violent
Excitement often brings on this increased Impetus
& Delirium attends. increased
Impetus alone then will not act for De-
lirium. a Resistance then to the Brain's
Action must always be present, so that
the binding of Delirium we have the
eff. depend on or up upon some
Cause. It is difficult to conceive how



More mixed causes operate, but we have an analogy to it in the operation of narcotics. They are both sedative & stimulating. It is only when they act in this manner that Delirium happens. A Person just waking from sleep is in this delirious situation from the insensibility being under the mixed powers of both the causes we have assigned. ~~It~~ When a man dreams his brain is in the half excited state. It can only happen in two cases. When some stimulus excites part of the brain, but leaves another part being unexcited. a confusion of thought

+ They differ from Delirium in this way
the brain is in a less excited state than in
Delirium or Madness. -

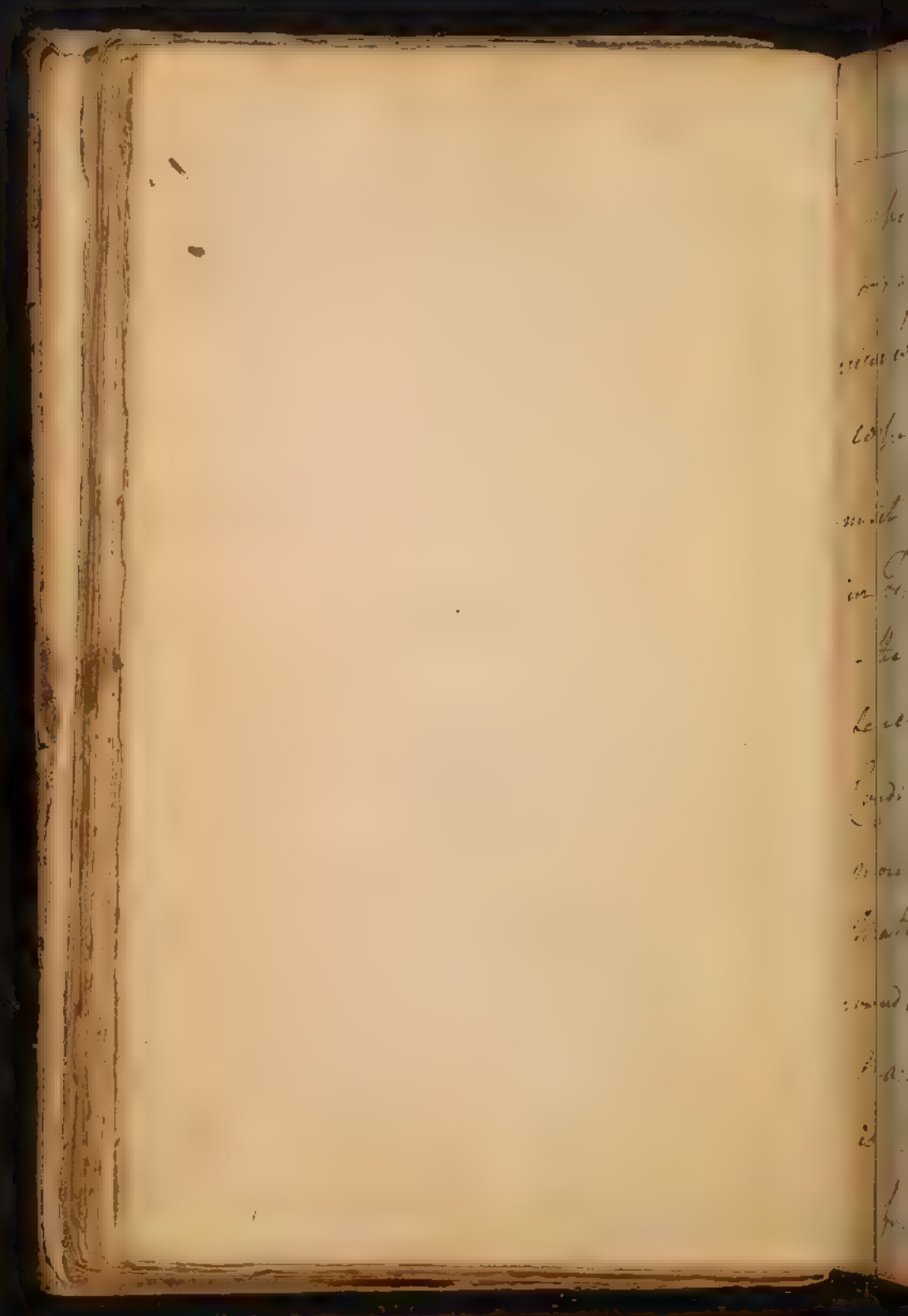
(a) Men when Exasperations make
sudden transitions from one thing to another
& then become wildly so in one of these
situations. the brain is in a too high
excited state. hence the poet justly said
"For at not & Madness nearly an allied"

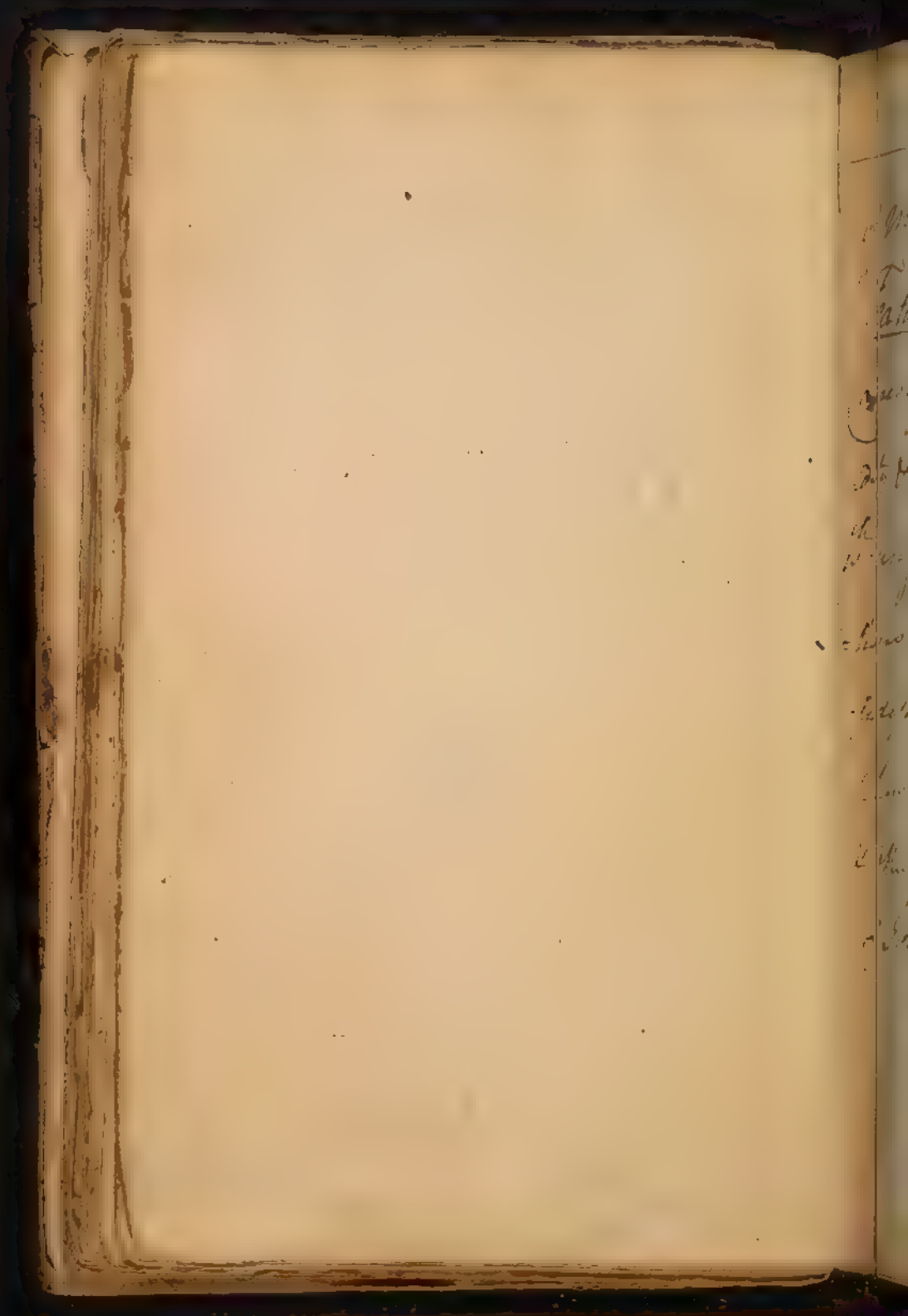
awake. now a Dream & Delirium are ex-
actly analogous to each other: in ^{the}
Delirium the brain appears to be in the
same state as in a Dream. Delirium and
Dreams come on in the same manner.

But further the fixed brain of Mania
shows no organic affection, & strongly
confirms the doctrine we have advanced.

But an excess of excitement as well as a
want of it tends to bring on Mania.

Some Mania arises from long continued
excess of the Excitatory Impulse as well
as an unequal excitement of Sensorium
as well as an excess
of it. This state of Excitement is said





of Mania's considerably increased.

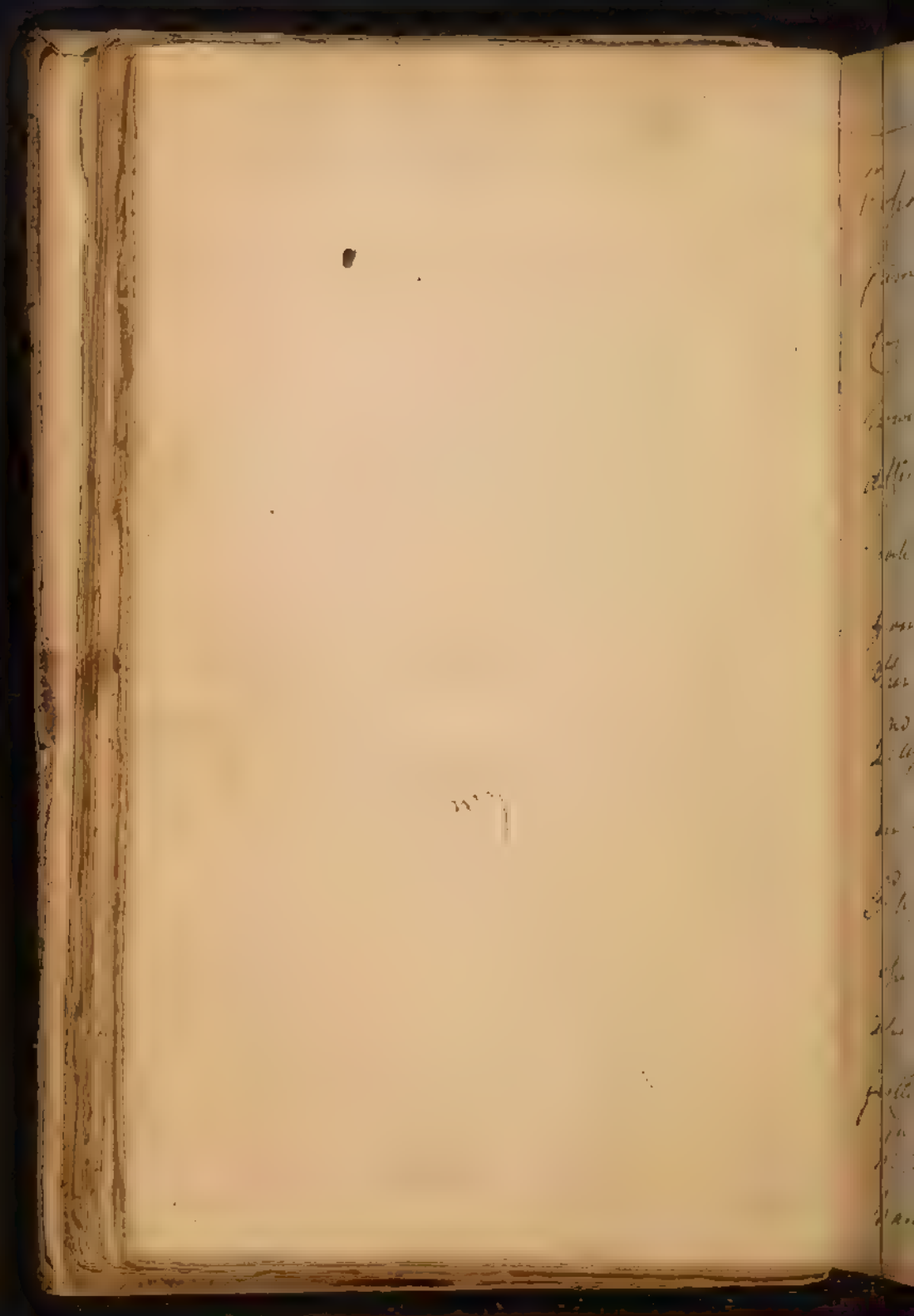
Fecundity depends upon the Reverse
 cause of Madness viz: too great Densi-
 ty & Humidity of the Brain & causes
 the want of them to propagate Viller-
 tions. The Fecundity of Infants evident-
 ly depends upon the Cause. Dissection
 shows support this Doctrine. Morgagni
 & other Dissectioners have found the Trains
 of Spermatozoa's to be naturally soft

As this may be subdivided into
two kinds: 1. When the Enervation is
not affected. & 2. When the Sensori:^m
affected wth Stoper. the first has been
called by Authors Enervation Stupid by
speaking. the 2^d Stupidus. the 3^d Enervation
may likewise be put under the second
head.

The moving Powers may be divided
into ^{two} kinds as consisting in 1st of
Action & 2nd in want of Motion.

Spasm belongs to the first. It may
be divided into two kinds. 1st is called
being in Relaxation w^{ch} is called Convulsion
or Motus Convulsus. 2^d Spasm w^{ch} does
not alternate wth Relaxation. 3^d is called
it subsists in one Muscle for a consi-
derable time. This is properly called
Spasm or Motus Tonicus.

The Causes of Spasm Convulsion are
in all the same & often mixed. I sh^{ll}
attend them to you before when treating
on Irritability. They may depend

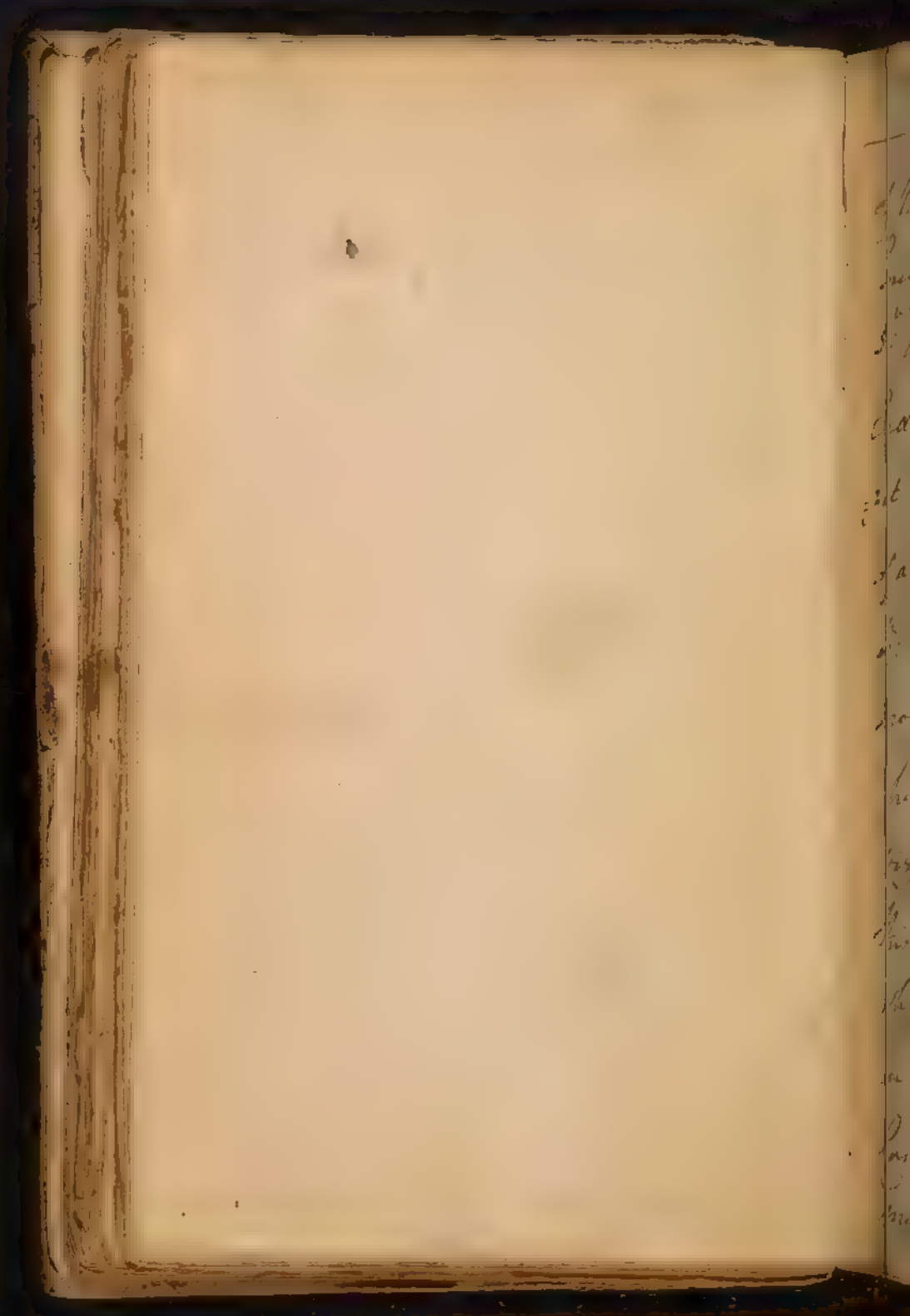


1st upon the Force of Impression, have any
stimuli a specific power of inducing
Convulsions? I believe not. It would
however be of use to consider the same
in different manner in w^{ch} Stimuli ope-
rate. - Are they direct or indirect? & what
from y^e Force of Impression & w^{ch} act from
other Circumstances joining wth them.

2nd Upon increased Sensibility depend:
as a Mobility of y^e Nervous Powers.

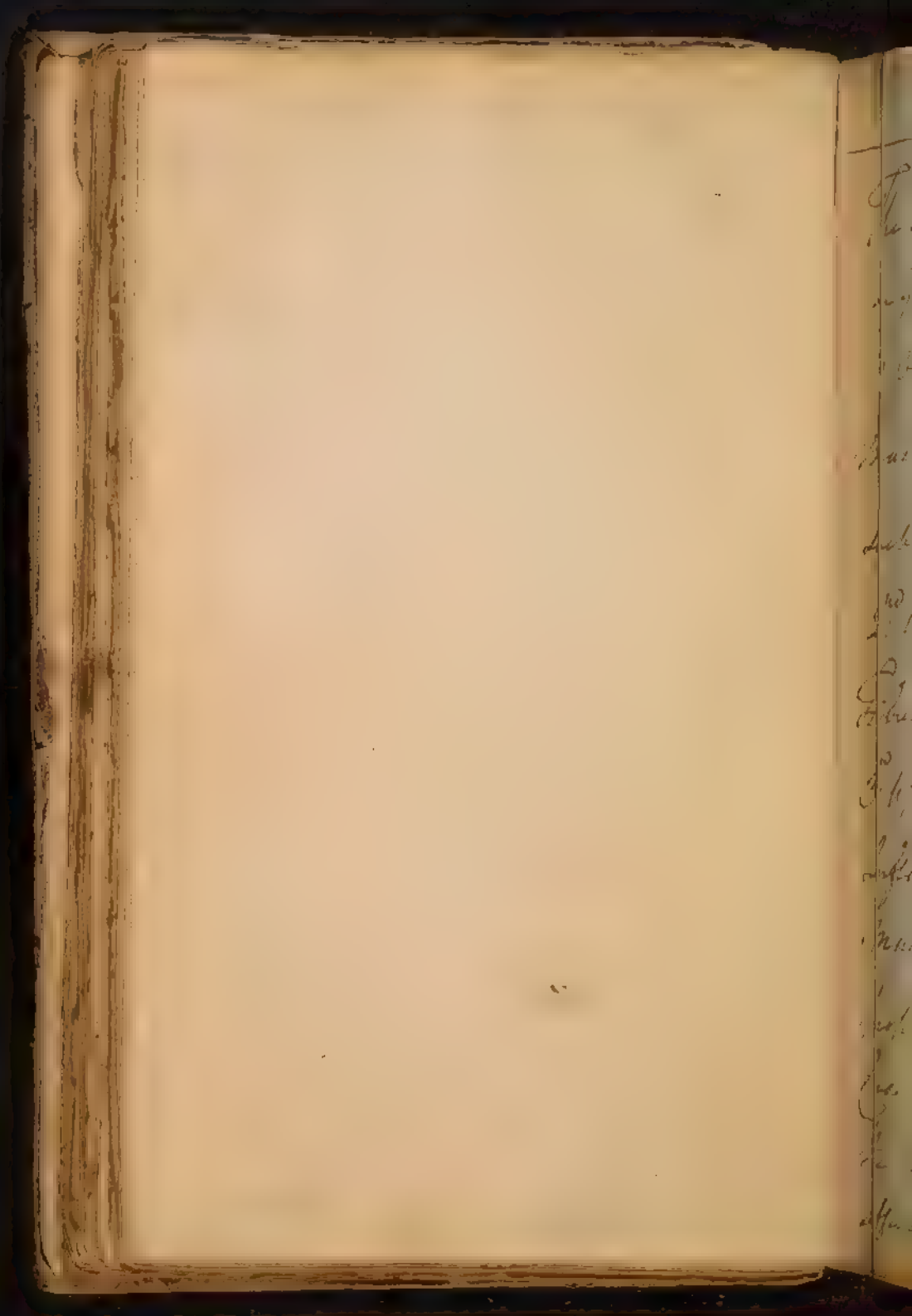
3rd Upon increased Irritability. Powers
especially those of the inflammatory kind
depend upon this Cause. & Spasms may
justly arise. As also from too little vice.

4th Upon a Mobility depending upon a
Want of Tension. This Cause is y^e Reverse



of the former, & is induced by a want of
Energy in the Sarcotrium.

5: Upon those cases ^{the} distinct & established
Order of our Actions. our System is sub-
ject to Habits ^{the} determining the beauty
of all our Motions. any Cause then
^{the} disturbs the Order or Train of our
Motions may bring on Convulsions
such as the Gallstone we resigned
by the Force of Impulsion may act in
this way? — be it so Persons
who when they first learn to play
on a French horn ^{the} stand dis-
concerted in their Fingers, from
moving them quickly & ordinarily.

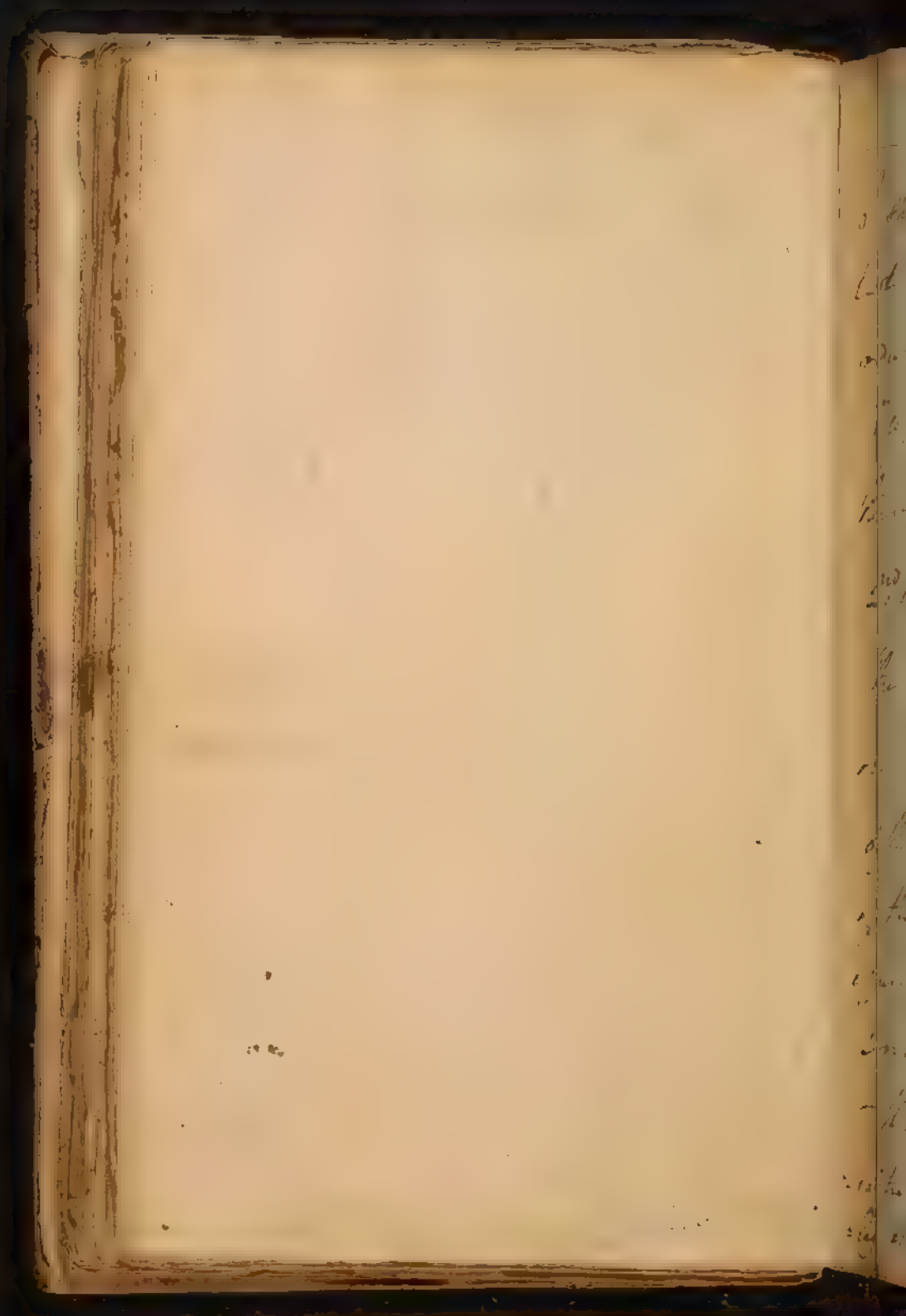


The defect of Motion may be caused
by the following Causes.

1. Various Organic Affections of the
Muscles preventing their Contraction.
such as over Distention with fluid.

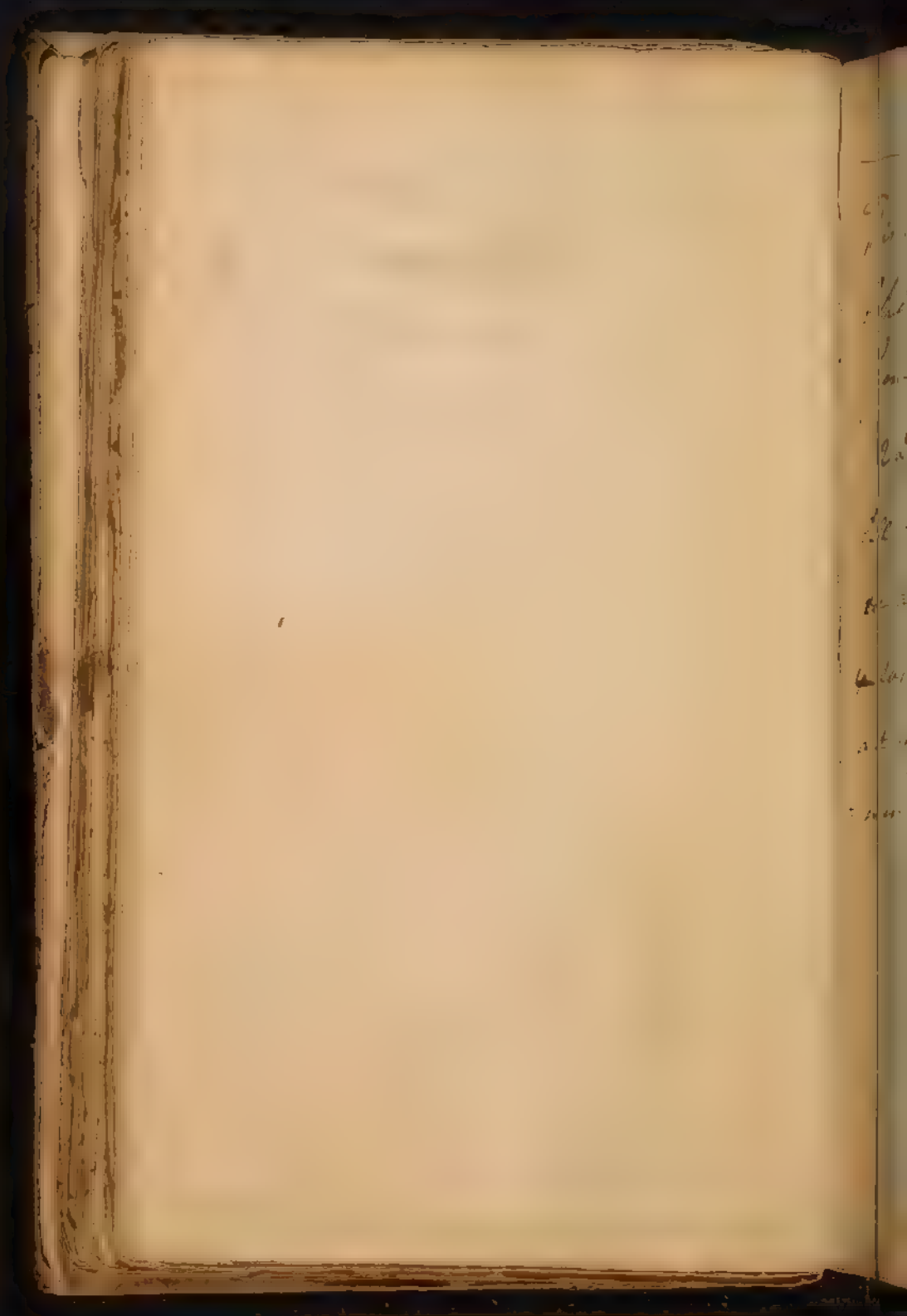
2.nd When the Affections of the moving
Fibres alone or upon Atonia.

3.rd When an Interruption of the Nervous
Influx from the Sensorium into the
Muscles. These two last are only
properly to be called Palsy. The first
Case may be called simple Atonia as
the Muscles & Sensorium are seldom
affected in it.



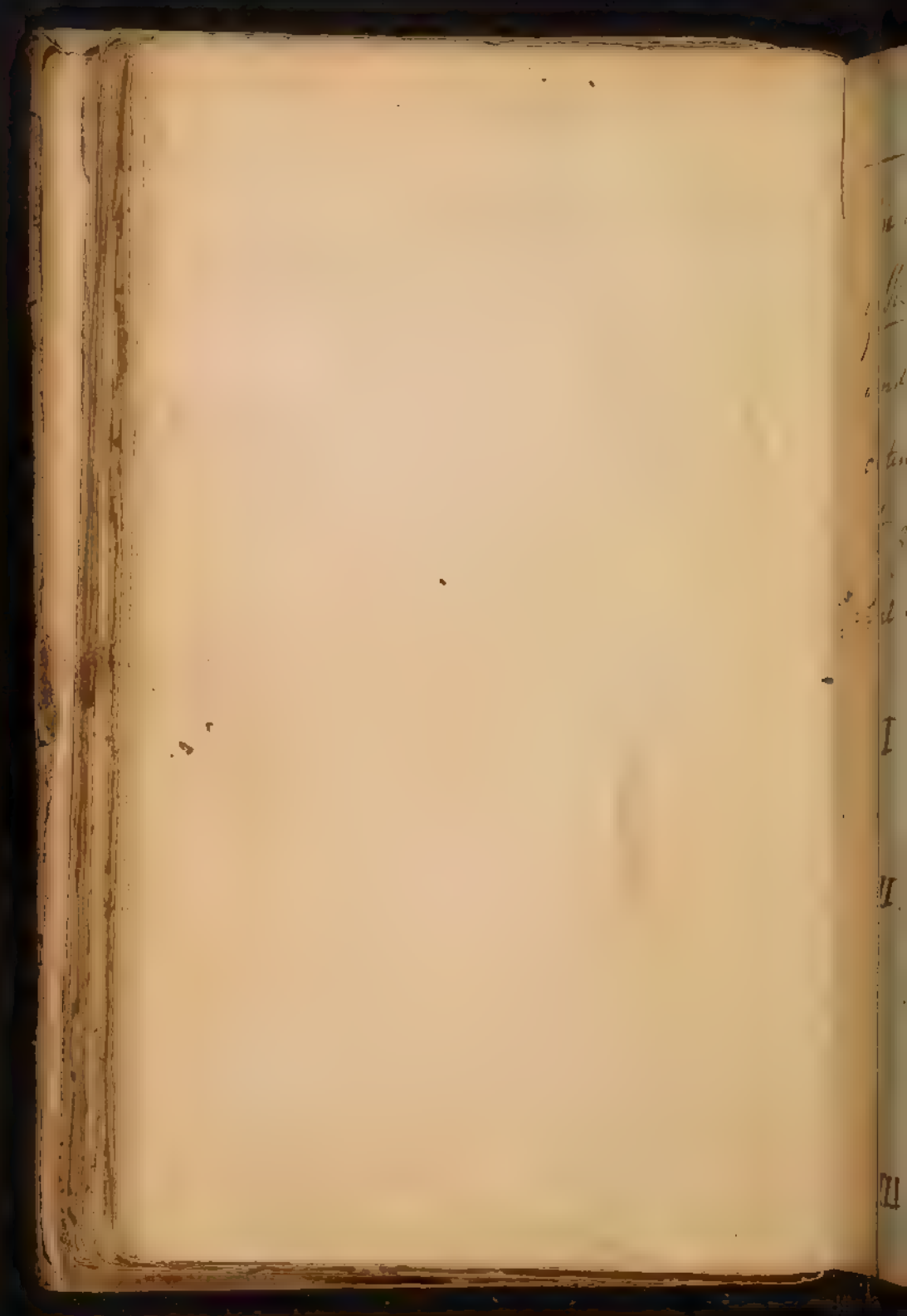
I shall confine myself only to the
 last Cause, ~~which~~ ^{which} may be
 reduced to two heads, as depending
 1st upon Causes external to the system
 the Effect of the Nervous power or
 2nd upon diminished Excitement.

The 1st viz Compression may depend
 on extraneous Bodies - Affections
 of the Brain - Tumors - a Pluritude
 of the blood vessels of the Brain - Which
 affords some Substances - by augmenting
 the Nervous System - increased Excitation
 - Tumors - Hemorrhoids &c. The
 multitude of the vessels induces it most frequ-
 ently especially when in the Nervous System.



The following sufficiently confirm
the theory in all its degrees arising
from this cause.

2 Diminished Excitement. It is hard to
tell when this is in excess or defect.
we are sure that Cold - Narcotics
& some Antiseptics - Depletion will
act by inducing a diminished Exci-
tement or Atonia in the moving Fibres.



484

Of ^{the} Symptoms of Respiration

We come now to treat of ^{the} symptoms
of Respiration or of those diseases which
render it difficult. The Subject is very
extensive, I suppose that you will therefore
to give you all the causes in a Synops-
is or Tabular Form.

Inspiration difficultis

I De vitio Aeris

1 nimis rari

2 nimis calidi

II. De Angustia viarum per quas Aer
intrare debet.

Angina varia (Tab. v. G. IX. Sauvage)

— a deglutiti G. IX. Sp. 9

— a Bronchocle 10

— variolosa 24

III. De vitio Thoracis

1 Male Conformatæ

2.

III. De vitio Thoracis

— Dyspnoea Pleuritica §. VII. p. 10

— Pleuritis a gibbo §. VIII. p. 9

2. Causae

A. Luxatione } Dyspnoea traumatica 15

B. Fractura

C. Angustia } Orthopnoea traumatica 16

3. sine dolore motum negantis

Dyspnoea traumatica

Pleuritis.

Pneurodyne

IV. De vitio musculorum Inspirationi fa-
miliantium.

Dyspnoea traumatica 15

Orthopnoea traumatica 16

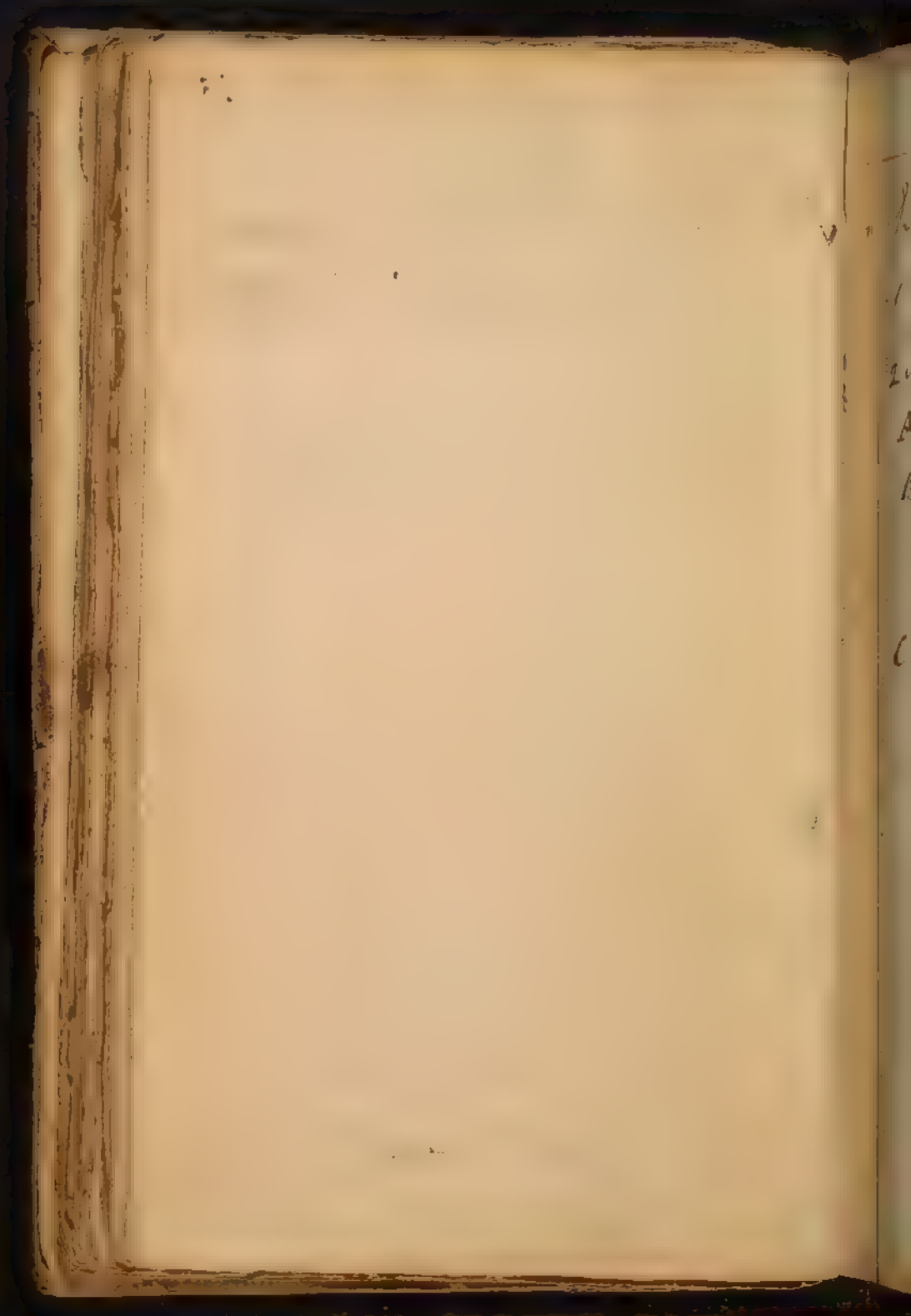
Dyspnoea Pleuritica 22.

Dyspnoea Galenica 17.

Dyspnoea ab Hydrocephalo 23

V. De vitio Pulmonis

1. Rigidi



V. In toto Pulmonis

1 Dyspnoea Paralytica 10.

2 Spasmo convulsivi

A Ab aere frigido.

B Ab aere inquinato.

Asthma Metallicum 12

B Dyspnoea a vaporibus 16

C Ab Irritabilitate

2 Asthma Idiopathicum

Asthma Humidum 1

—— Convulsivum 2.

b. Asthma Sympathicum

Asthma Hystericum 3.

Orthopnea Hysterica

Asthma Hypochondriacum 4

—— Stomachicum 8.

—— Convulsivum Boerh. 19

Orthopnea ab Antipathia 15

Asthma Arthriticum 5

22

7
6

A

B

V ex vitio Pulmonis

2 G. C. Asthma Santimonialium 11

——— Senecium 14

Orthopnea fibrillosa 20

——— a Vermibus 17.

3 a Matrice Occlusi

A Sanguine

Peripneumonia.

~~Haemoptoe~~

Asthma Plethoricum 15

Orthopnea puripneumonia 1

—— Pseudo-puripneumonia 21.

Asthma a Polypo Cordis 6.

Orthopnea Cardiac 2

B. Sero

Dyspnea siccitosa 1.

Asthma Cachecticum 13.

V
D
G
D
E
G
H

Inspiratio fit difficilis. 488

V a defectu Pulmonis

B. ~~Orthopnea~~ ab Hydrothoracico 12.

C. Nunc

- Asthma Catarrhale 16.

— Pneumodes 17.

D. Nunc

Dyspnea a Pneumatica 12

E. Nunc

Orthopnea a Bronica 7.

Plethitis pulmonalis

F. Calculis

Dyspnea calculosa 3

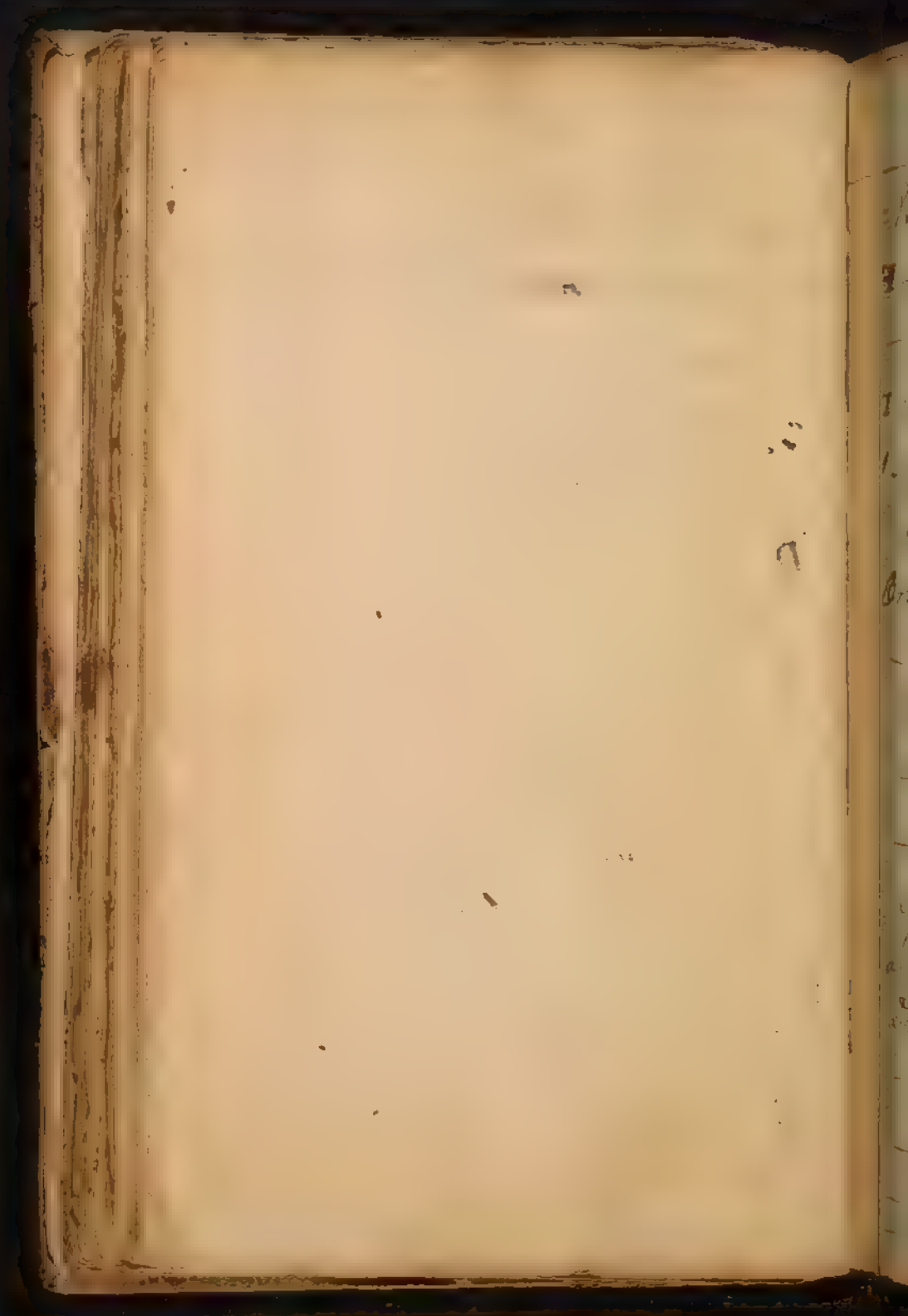
G. Nunc

- Asthma Pleuriticum 7

H. Nunc

Dyspnea a Tuberculis 2

- ab Hydrathorace 4



▽ De Pulmone

H - a Pleuritis 5

— a Pericardio 6

VI De Pulmone compressa

1. a Causis intra Thoracem

Dyspnoea a Corde 11.

Orthopnoea ab Inanitate 8

— a Pinguine 6

— a Pleurite 18

— a Hydrothorace 5

— ab Inflammatione 13

Dyspnoea traumatica 15

2. a Causis in Abdomine existens

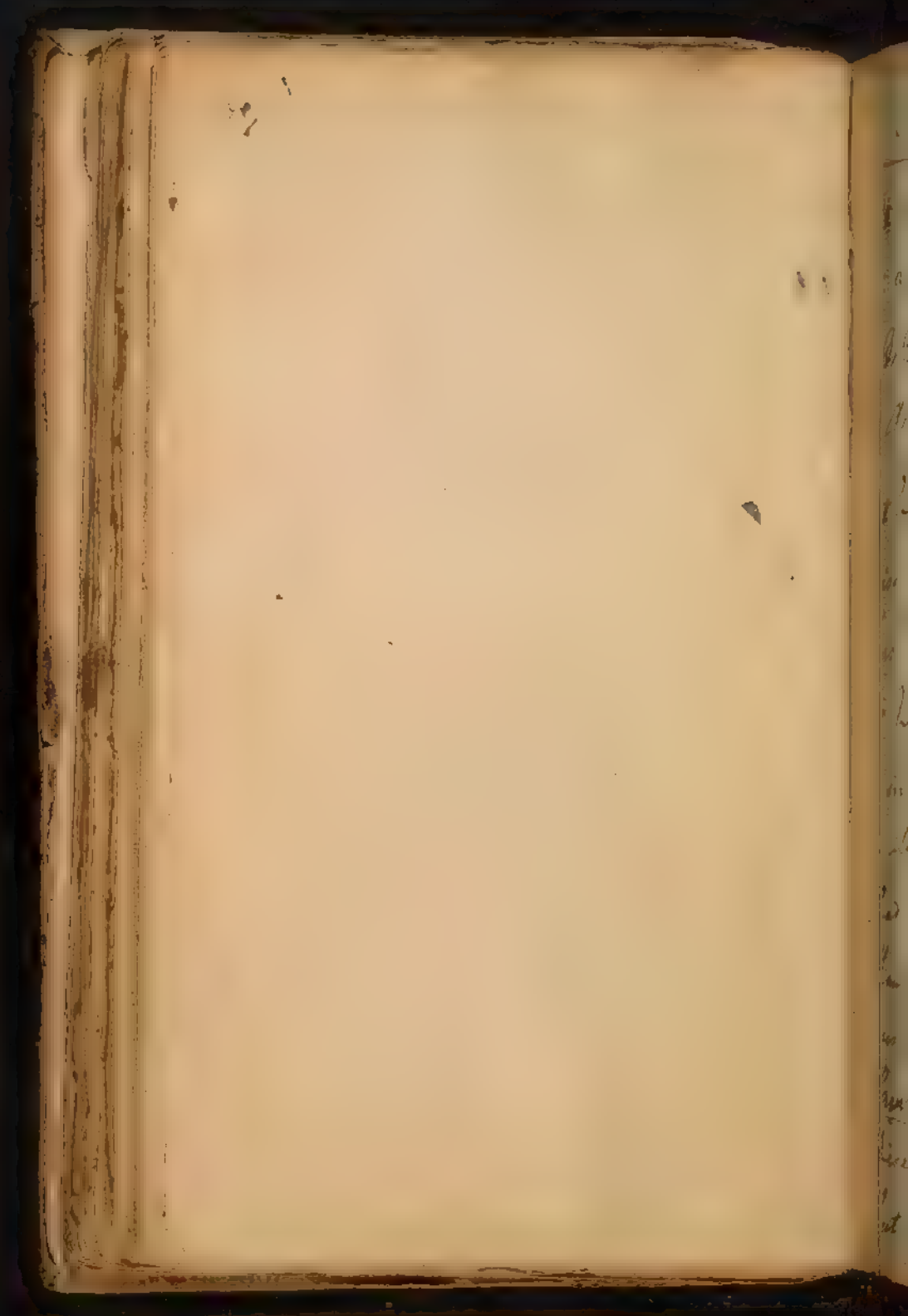
Dyspnoea a Pleuritis 7. orum

— a Gravitate 8.

— a Tympanitica 9

— a Stomacho 13.

— a Liene 14.



VI De Pulmone comprehens.

2 a Gastrocœle 18

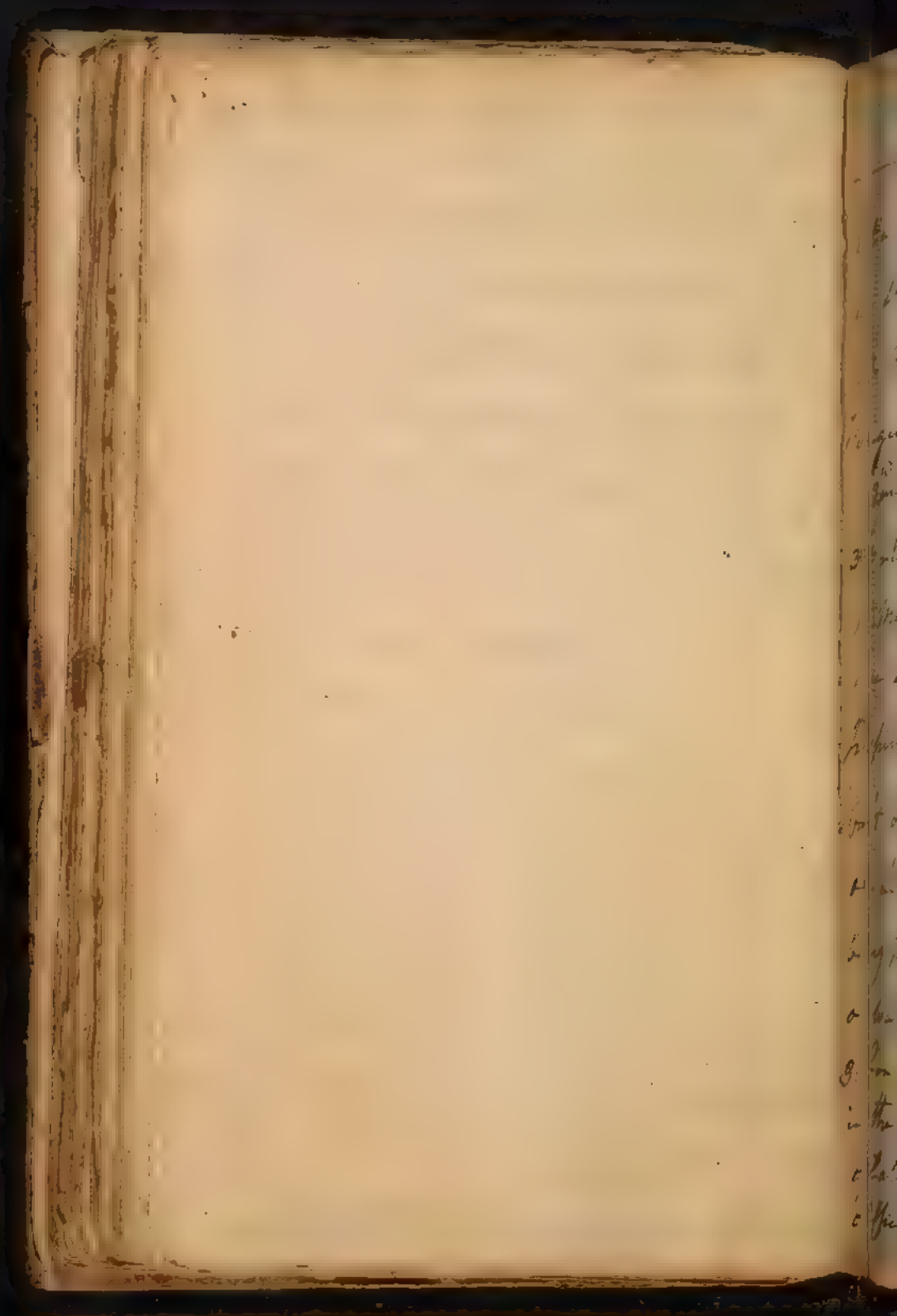
Bronchitis a Gastrocœle 11

Asthma Hysteriæ a Gastrocœle 18.

I & Amis lito. very fine Diseases
arise from the Lungs. I think Dr. Cullen
has been too diffusive upon this subject.

II De Angustia hians per quas len-
itatem debet.

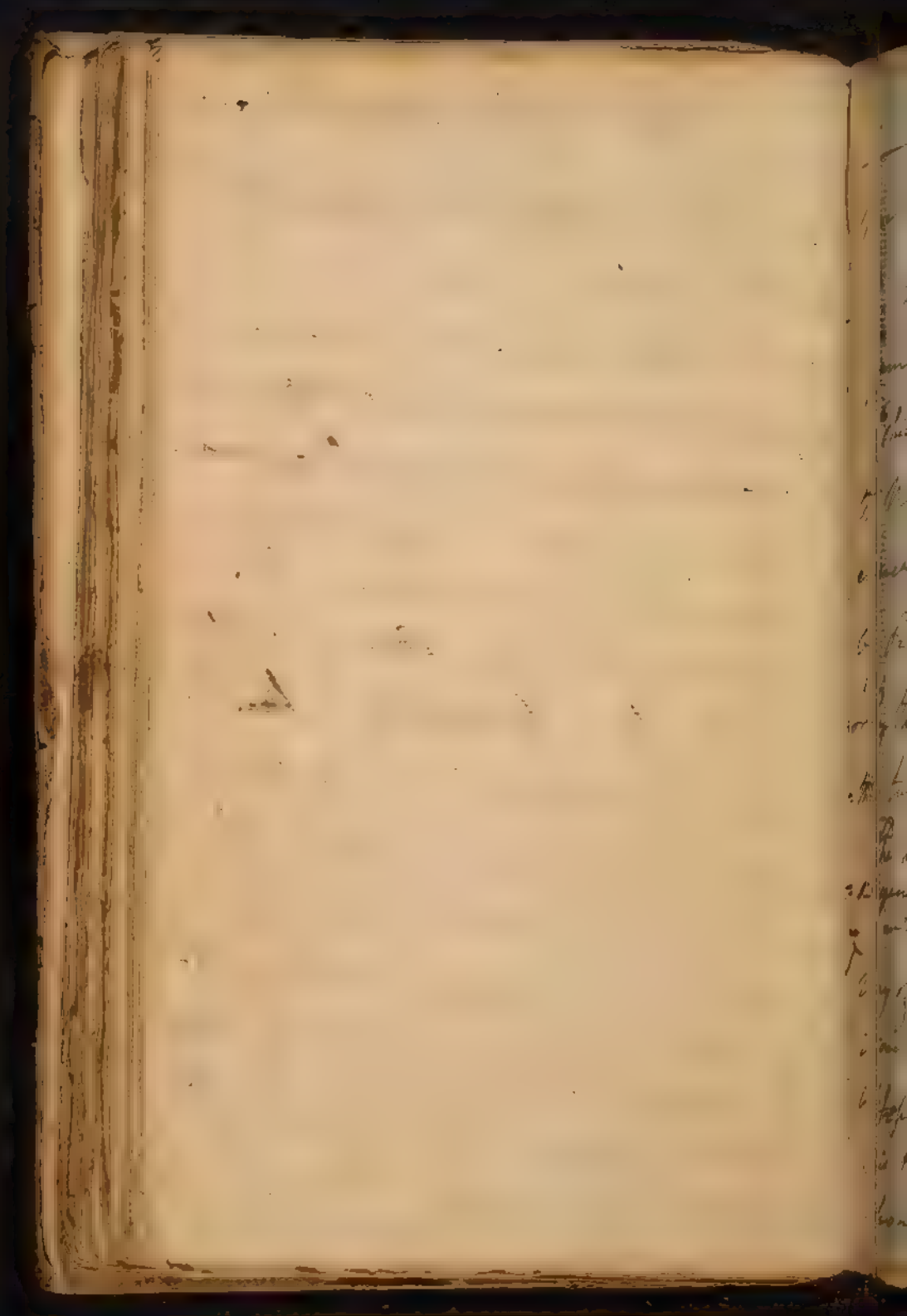
All the Diseases marked under this
Head are rather Symptoms of Diseases
than any thing else. The attention is
now where little danger is to be apprehended.
Sawage has considered some of them as
Diseases of young especially the first, &
but they depend upon nothing else



Inspiratio et difficilis 491

but a narrowing of the passage this w^{ch}
is sh^d be.

III. It is the Thoracic. w^{ch} may be either
congenial, or produced shortly after Birth.
or may arise from occasional Lesions, or
It may arise from pains restraining
the Muscles w^{ch} should move the Thorax to
then we might have added a difficult
Inspiration from Decubitus w^{ch} may be
brought on by 3 Causes 1st an Affection of
one Side of the Lungs w^{ch} prevents their
being properly exercised 2nd from a vomica
or water being accumulated on one Side.
3rd from the Lungs being compressed by water
in the Abdomen, & therefore unable to
dilate themselves in Void. The Inspiratio
difficilis from the Posture of the Body might

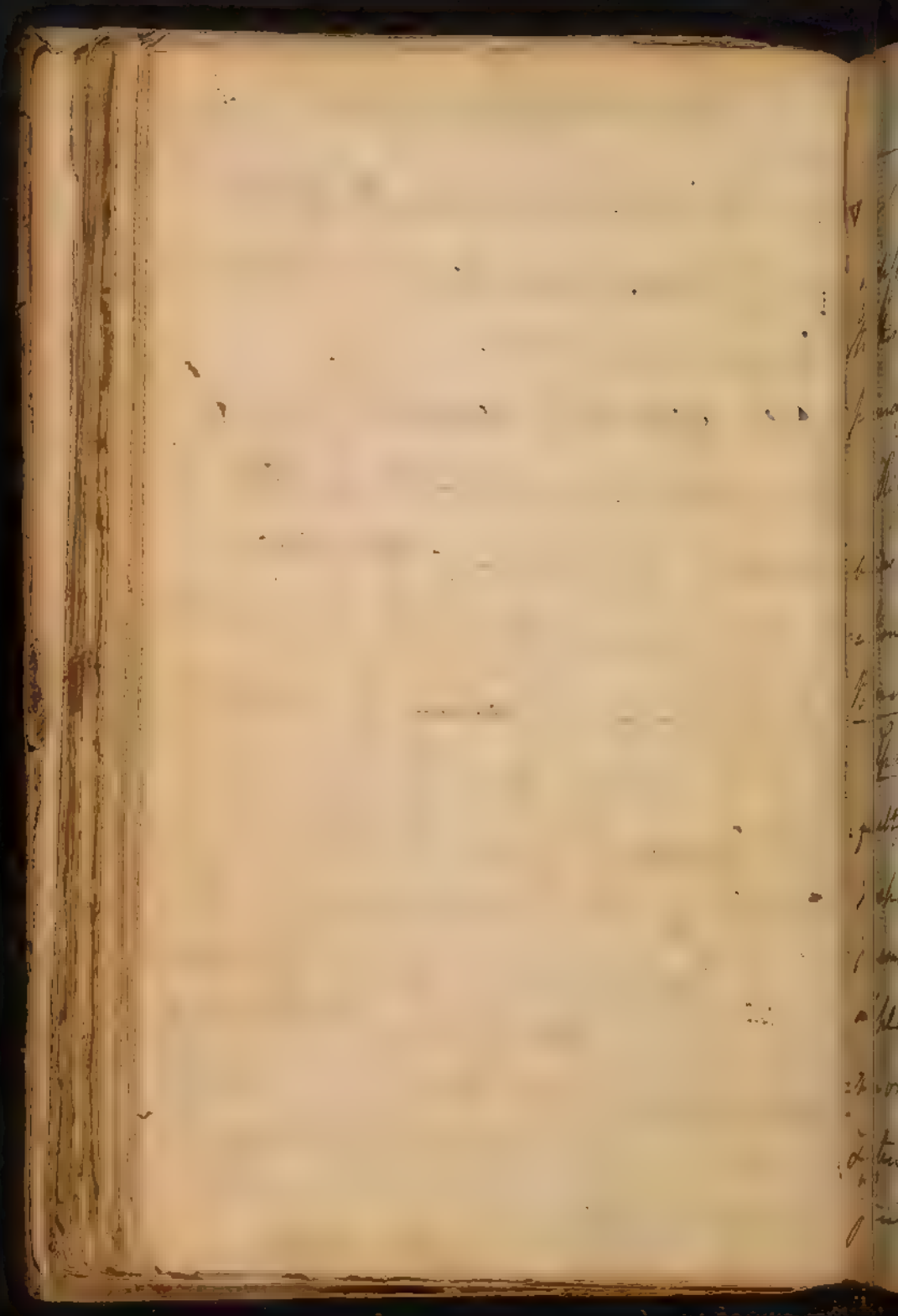


have been bro't in under this Head.

IV. *In vitro* musculorum Inspiratione
Sammiliantium.

This often takes place in *Lary* from
the Muscles being rendered paralytic by
increased Circulation of the Blood, or
by Pains resembling the Rheumatic,
or by the Globus Hystericus in several An-
thors to be botch'd off in the Larynx.

The *Dyspnoea Galenica* happens in Con-
sequence of cutting the Phrenic Nerve in *q*.
Way of Experiment. But I have seen
it occur from other Causes. The *Dyspnoea*
Apoplectica might have come under
this Head as depending in some Measure
upon this Cause. —

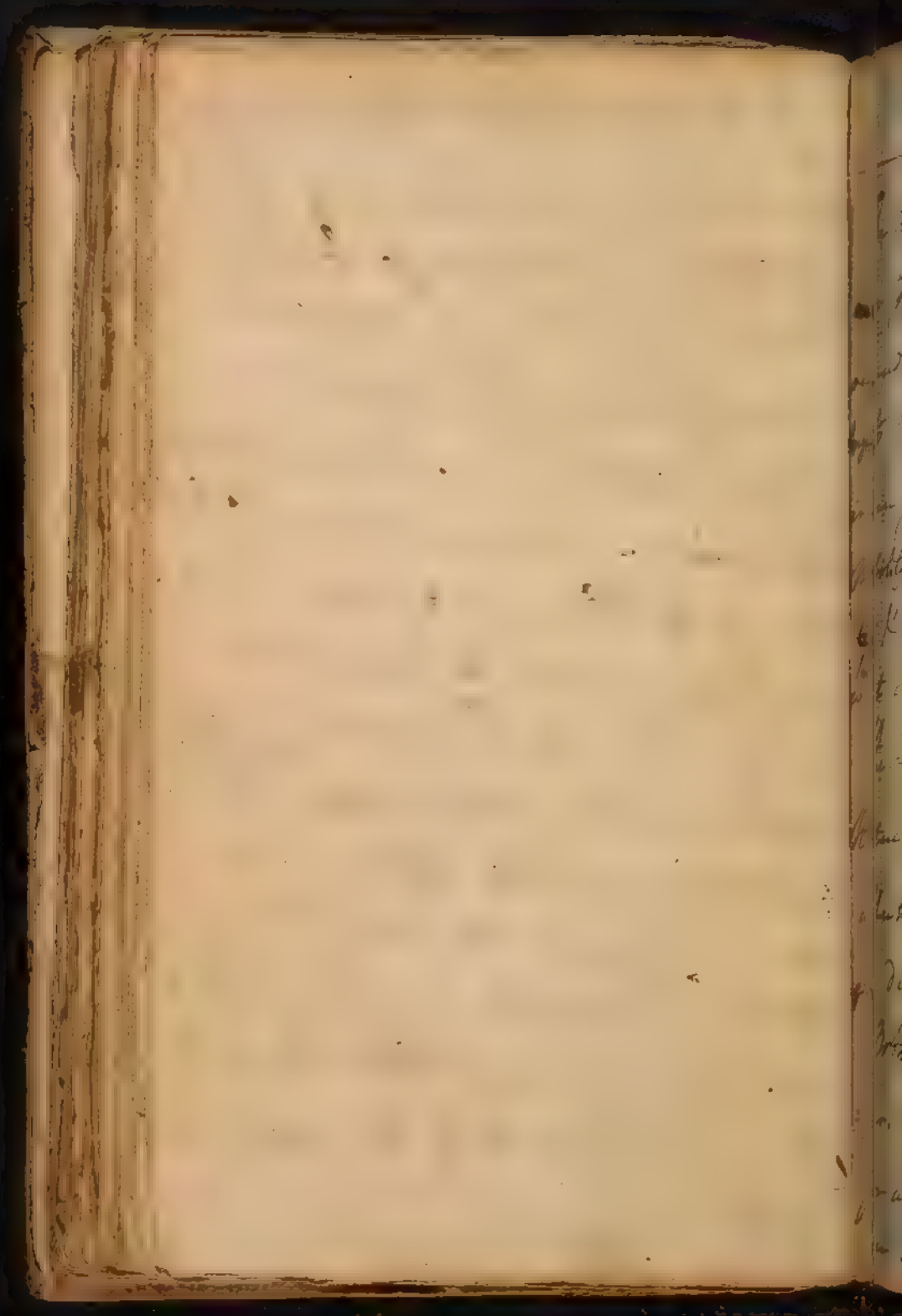


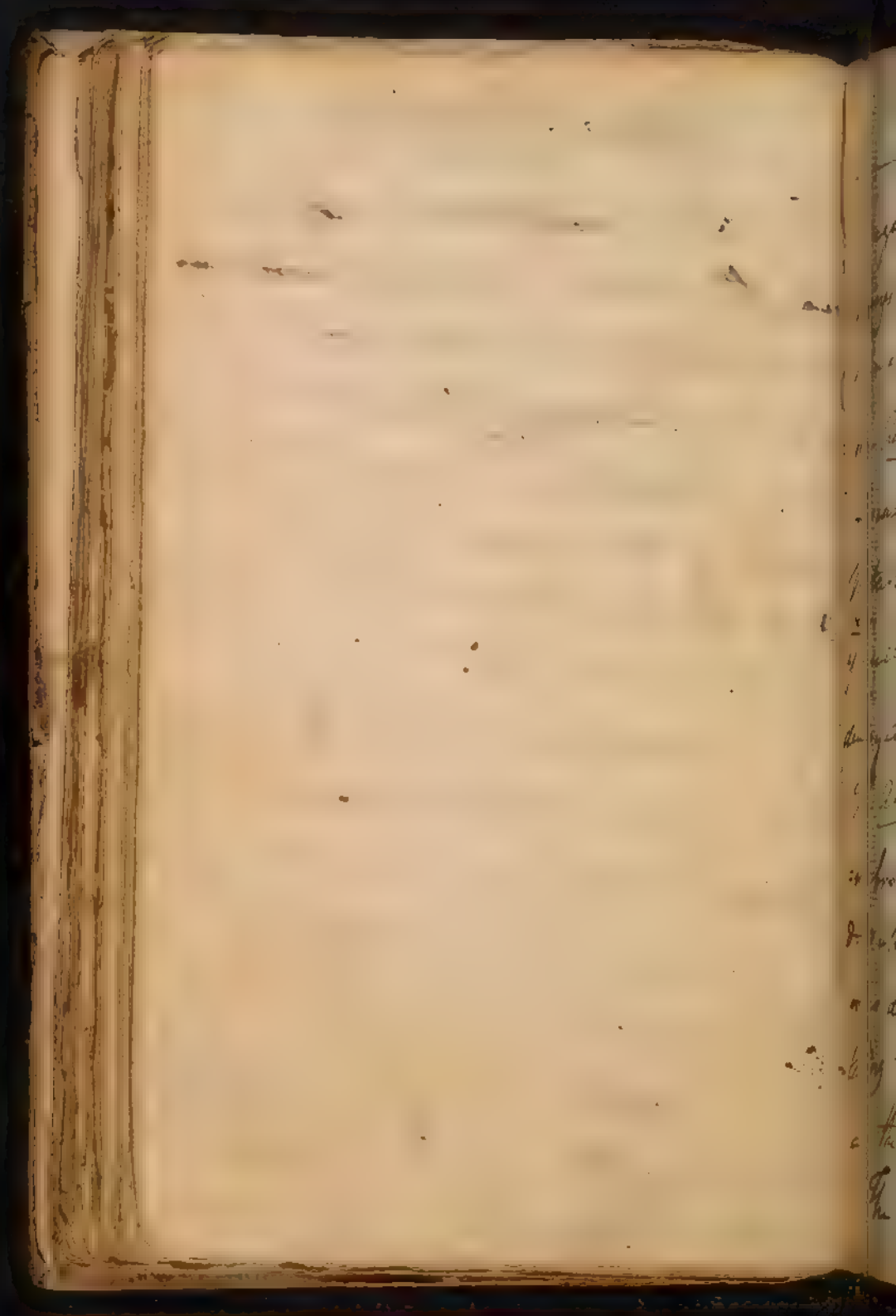
Inspiratio fit difficilis 493

ex Causis Thoracis. The chief Causes of difficult Respiration are to be reduced to this Head, as they are $\frac{2}{3}$ most general primary Affections of the Lungs.

1. Rigidity of the Lungs, this may include besides those we have mentioned Obstructions of the Bronchie. Morgan & Bonatus give us several Instances of it.

2. Spasm - This is a frequent Cause of difficult Inspiration. the Particles serving Inspiration are liable to Spasm. this Spasm may depend on particular Stimuli applied to $\frac{2}{3}$ muscles serving Inspiration or upon a general Affection of the Larynx w^{ch} disposes it to these spasmodic Strictures.



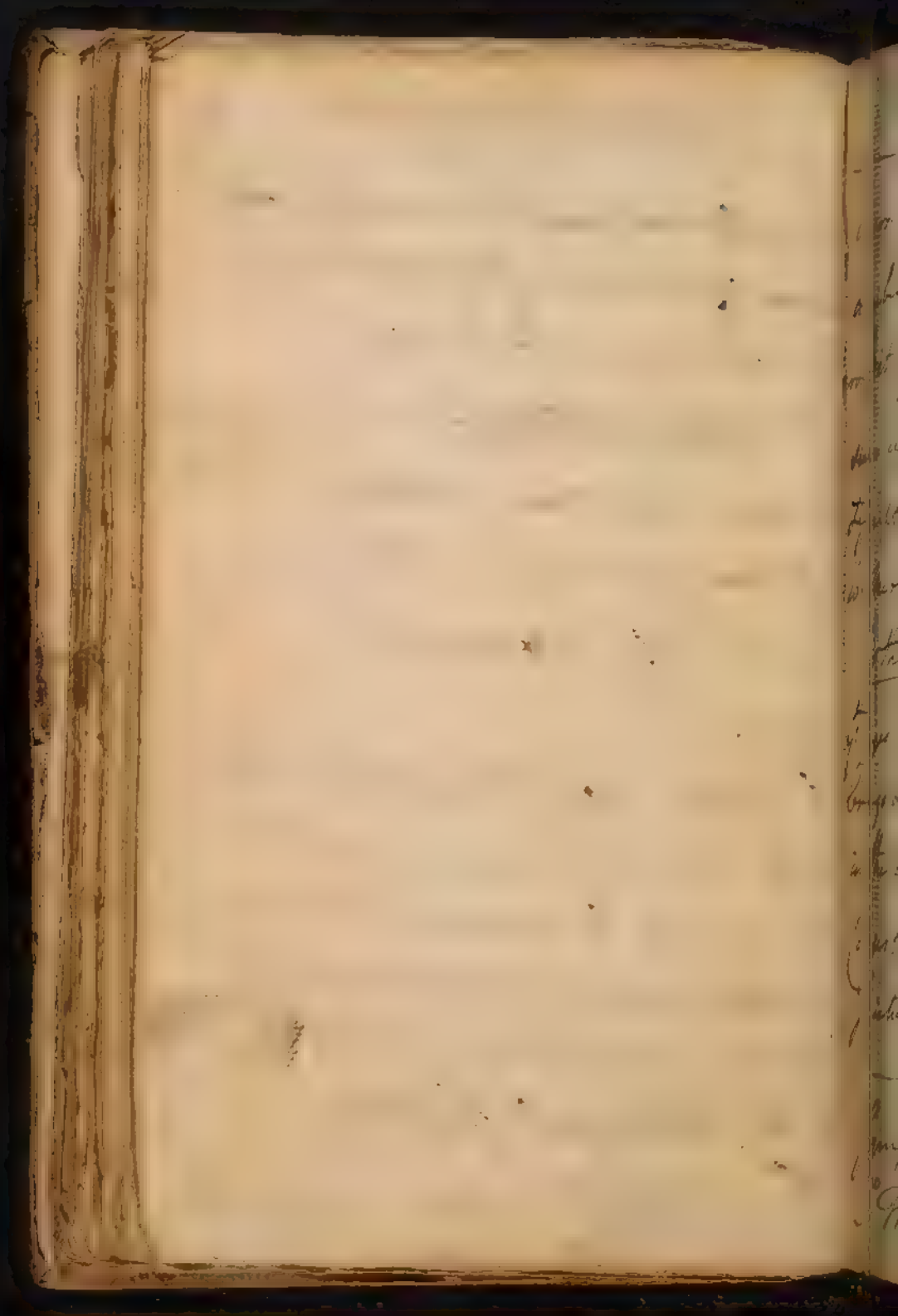


Irregular motions bro't on by Edors or
things of y^e kind are most apt to show
them selves upon the Lungs.

The Arthma Arthriticum is a common
Disease, but does not depend on a
Metastasis of Morbific Matter, but on
a Lequilibr^m of y^e nervous System being
destroyed.

The Arthma Haemorrhagicum. the Arth-
ma bro't on in consequence of Ulcers being
dried up may be reduced to the Head. It
does depend on Morbific Matter shun-
g the Lungs, but on y^e same Cause
as the Arthma Arthriticum.

The Arthma Pleuriticum very seldom

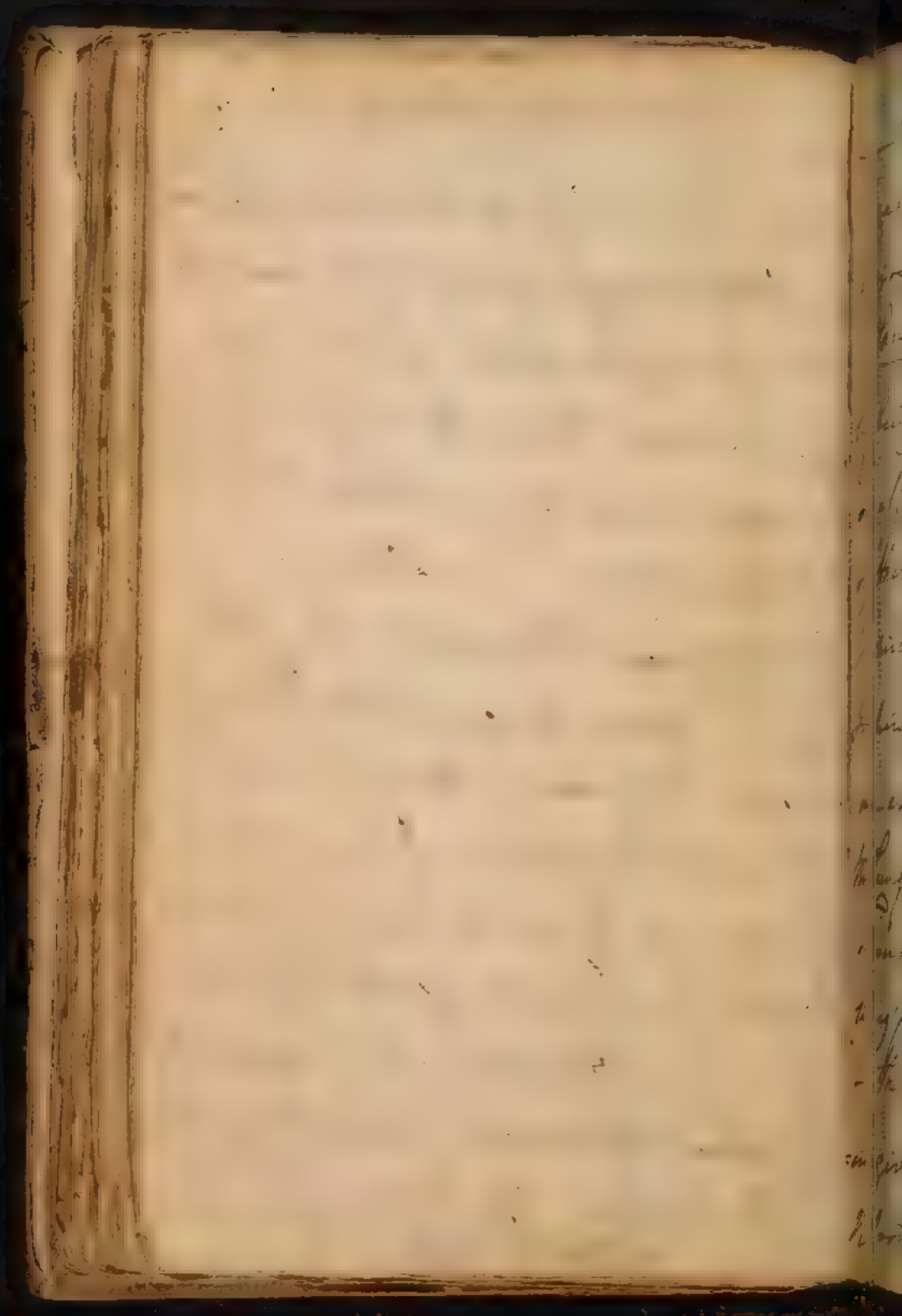


Inspiratio sit difficilis 496

occur. I know of no Author who has described Levage pretend. to have been said it from Boerhaave, but Junken says no more than that if such a Symptom should occur it must be caused th w: Mercurials in $\frac{2}{3}$ usual way.

Certropnea Fabriciosa. Every thing $\frac{2}{3}$ larger $\frac{2}{3}$ Blood too quickly to $\frac{2}{3}$ Lungs brings on Dyspnea. But it occurs too in the cold fit of Fevers from (not a Congestion of Blood in $\frac{2}{3}$ Lungs) but a Distention or $\frac{2}{3}$ vessels of the Lungs.

———— a Vermibus. This is evidently symptomatic & requires no Explanation
3rd The Matter w: by th filling $\frac{2}{3}$ Lungs

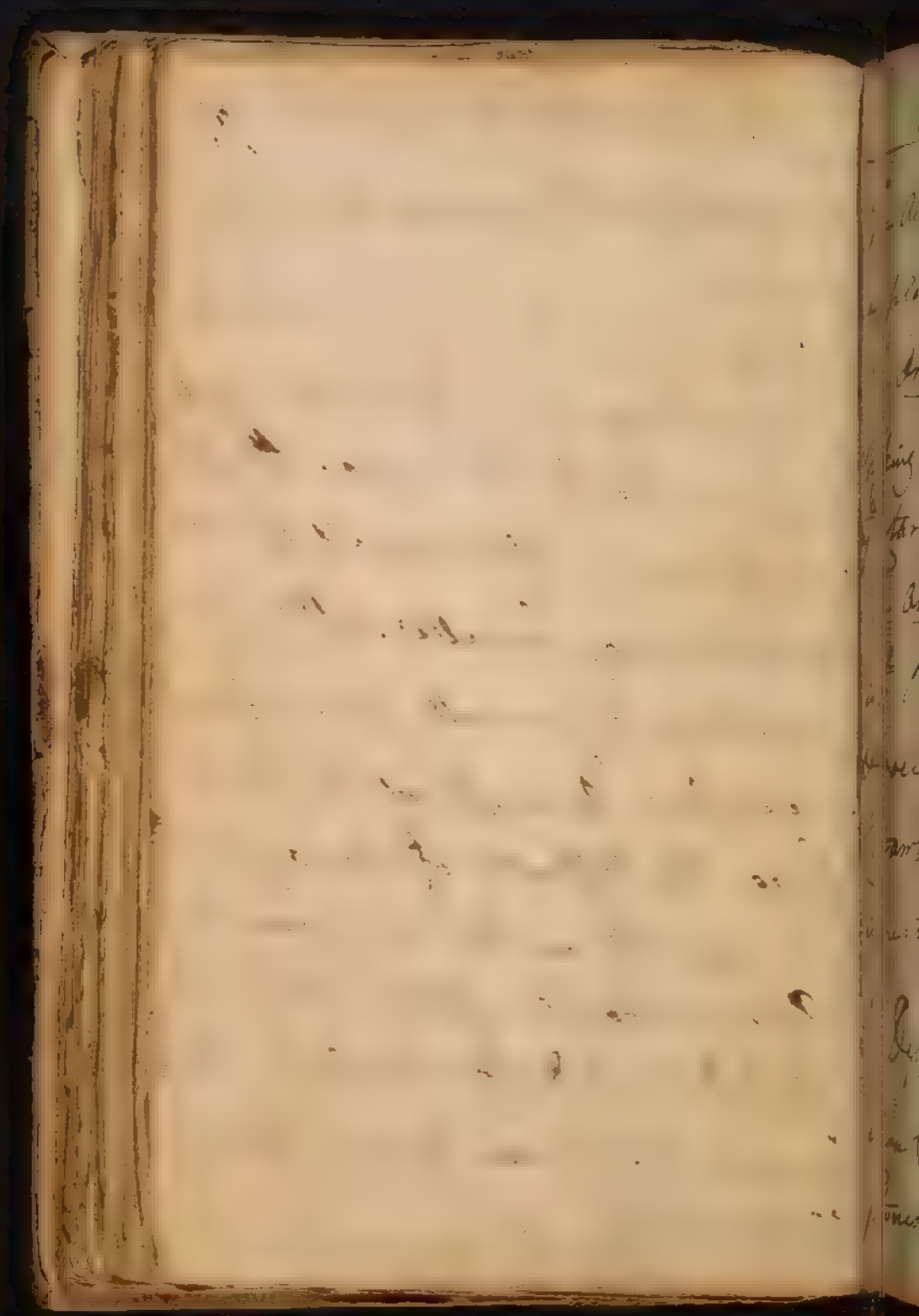


Inspiratio fit difficilis 497

occasioning difficult Inspiration are very various.

Languinis. This may act either by being congested in its proper vessels or effused into the Bronchia. The first of these occurs oftener. all quickened Inspiration may be called difficult Inspiration, & generally arises from an excessive Quantity of Blood in the Lungs. The difficulty of Breathing in Lungs depends on this Cause from Blood being poured too plentifully into the Lungs.

The Inflamⁿ & Hemorrhagic Di^sease gives a particular Determination of Blood to the Lungs.



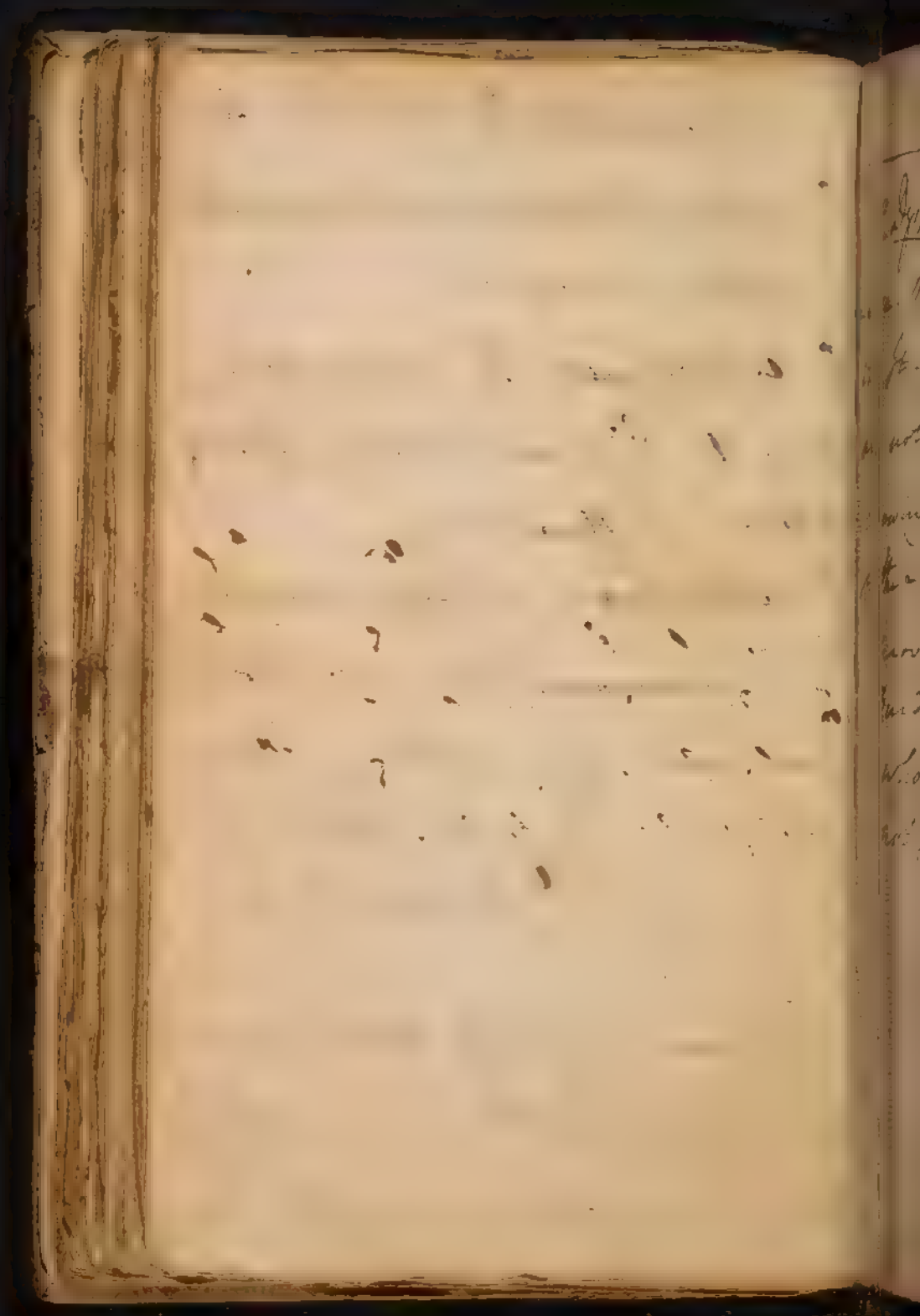
Inspiratio fit difficilis 498

The Asthma Plethoricum attends generally all plethoric Persons.

The Arthropnea Pseudopneumonia. is nothing else but an imbruyement of $\frac{2}{3}$ Catarrhus suffocatus.

The Arthropnea Pseudopneumonia is $\frac{2}{3}$ Pseudopneumonia of Sydenham & Boerhaave. It is nothing but a Catarrh or a Congestion of blood w:^{ch} is greater than $\frac{1}{3}$ Stimulus w:^{ch} induces it.

Dysphagia - Calculus depend generally upon Calcareous Earth, at least all $\frac{2}{3}$. Stones I have examined are of this kind.



The Dyspnea a Pulvone. is a real Dis-
 ease. The Flax Dressers are most subject to
 it. It is somewhat burrowing y: Millers
 are not subject to it. perhaps it may
 be owing to y: ^{the} Flower being less offensive
 to the Lungs. The Millers cough
 proverbial - owing to ^{the} old
Burdens &c. Hair Dressers
 who live among Flour
 not subject to it.

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Symptoms of the Heart's Action.

The Consideration of the Pulse naturally comprehends every thing relative to the Heart's Action.

I ~~shall~~ shall consider the Frequency of the Pulse, & confine myself to those which are most commonly marked. But here we must premise that ^{the} same causes always excite both ventricles of ^{the} Heart at once, & ^{the} Action of ^{the} Heart depends upon its Irritability. This Irritability may be considered as a *vis Excitans* ^{or} as depending upon the Sensorium. I do not suppose the first can be independent of the last as DeHaller has done, but shall assume it at present meaning by it those causes ^{which} act on ^{the} Heart.

itself ^{directly} or upon the Sensorium first & indirectly upon the Heart.

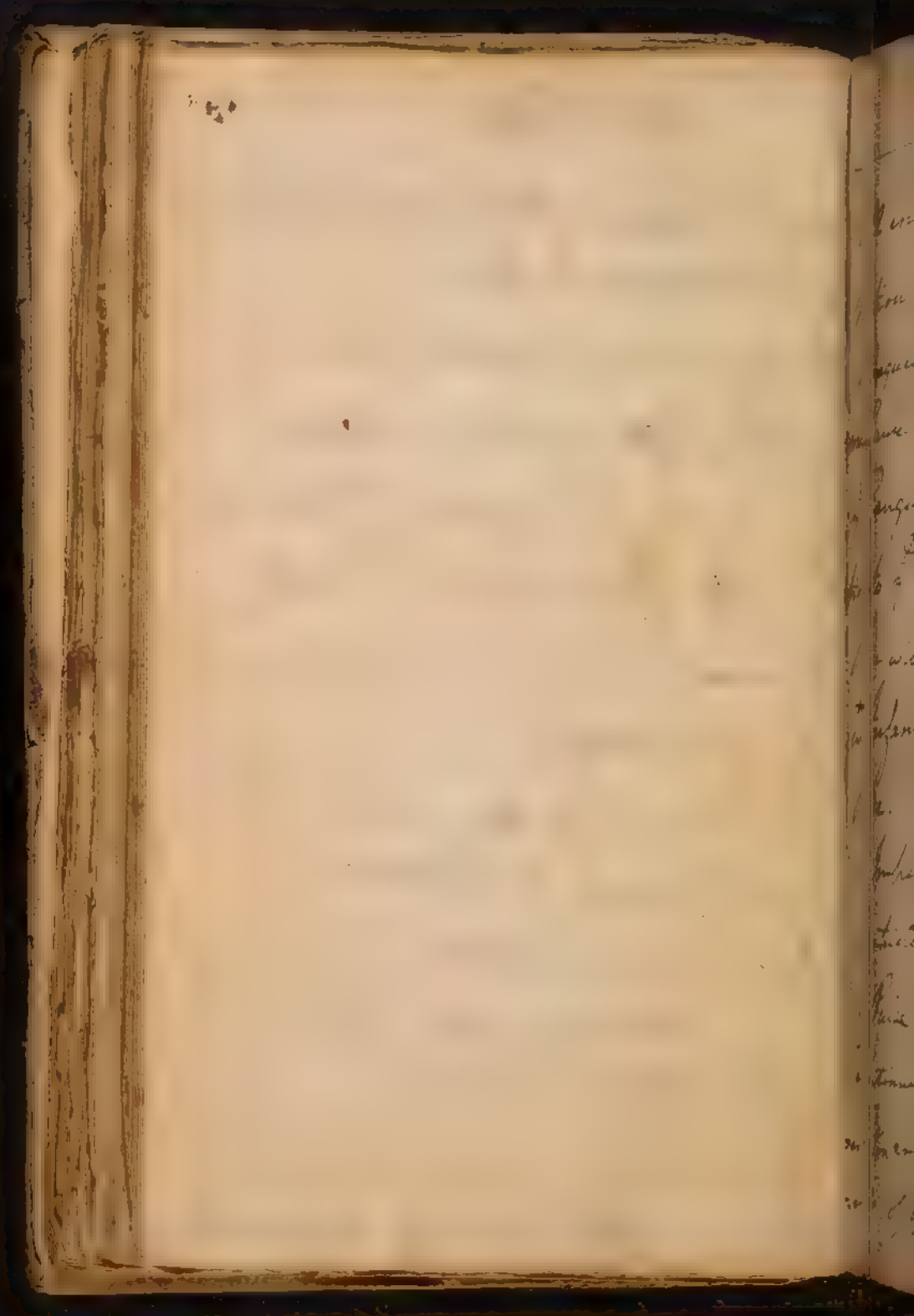
- The Causes acting upon ^{the} Heart directly are:
1. Influx of venous Blood.
 2. more or less Evacuation of ^{the} ven: Blood.
 3. The different States of Irritability.
 4. Unusual Stimuli applied directly to the Heart itself.

The Causes acting on ^{the} Sensorium may be reduced to ^{the} following

- 1 Direct & 2 Indirect Stimuli.

1. we shall consider the Causes ^{which} act directly on ^{the} Heart

1. what ever increases the Influx of the venous Blood beyond ^{its} ordinary

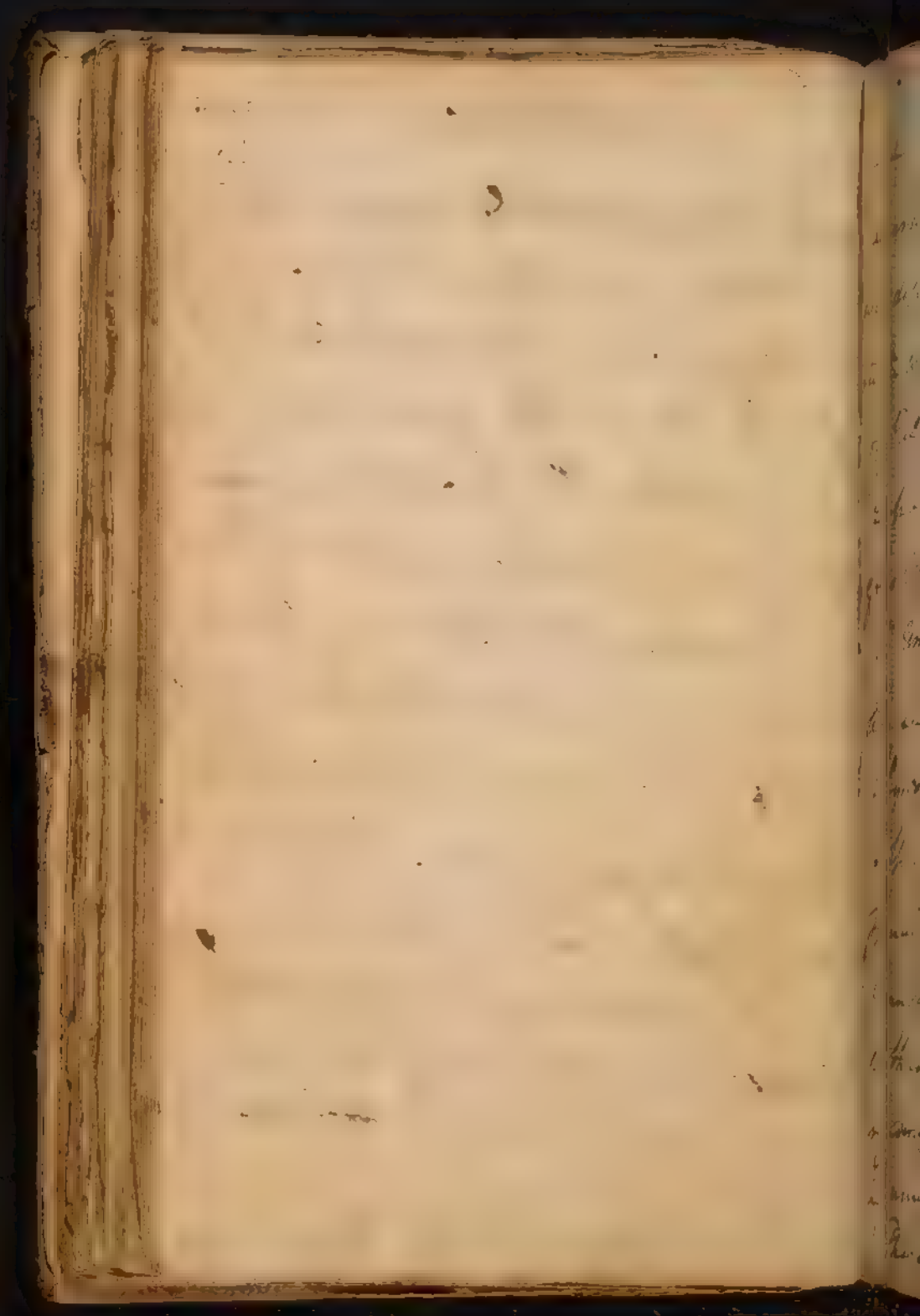


will increase the Pulse. Muscular Motion will produce this Effect as also a frequent Respiration is $\frac{2}{3}$ most common cause of a quick Pulse. If the Force of $\frac{2}{3}$ Sanguifer. System is not over proportioned to $\frac{2}{3}$ Heart's Magnitude a quick Pulse will be produced. This is $\frac{2}{3}$ Case in Infants hence $\frac{2}{3}$ Frequency of $\frac{2}{3}$ Pulse.

2 Imperfect vacuation of $\frac{2}{3}$ Heart's Ventricles will produce a Frequency of Pulse, as $\frac{2}{3}$ Heart's contraction always continues the same. This imperfect vacuation arises from clausure & a weakness of $\frac{2}{3}$ Ventricles of $\frac{2}{3}$ Heart. This occurs

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in all Cases of great Debility as in Delirium
 animi, or in dying Persons. hence
 we always find a frequent pulse just
 before Death. besides from some Cause
 the Sensibility of the Heart has been
 destroyed. or it may arise ^{2dly} from
 a Resistance in the Blood: vessels de-
 pending on enormous Polypus of the
 Aorta & Spasmodic Affections of the
 whole Arterial System. the Pulmon?
 Artery is affected by every thing w^h renders
 Respiration quick or difficult. so that $\frac{1}{2}$
 Blood: Course is more apt to be quickened
 in the Lungs than in $\frac{2}{3}$ the Aortic
 System.
 3 Increased Irritability may



encrease the Heart's Action - This
will depend 1st upon increased irritability
in the whole System. 2nd upon frequency
of Pulse in Infants & Females.

2nd upon general Asthenia & Debility which
gives Irritability & Irritability

1st Unusual stimuli of $\frac{2}{y}$ direct kind have
been supposed to encrease the Heart's Action.

Physicists have called in Heat, Heat, or
a Specific cause in the Blood as direct
stimuli to the Heart. But this is wthout

Foundation from $\frac{2}{y}$ Heart's Irritability
to them both, & from $\frac{2}{y}$ power of Habit
rendering them inefficual. what are

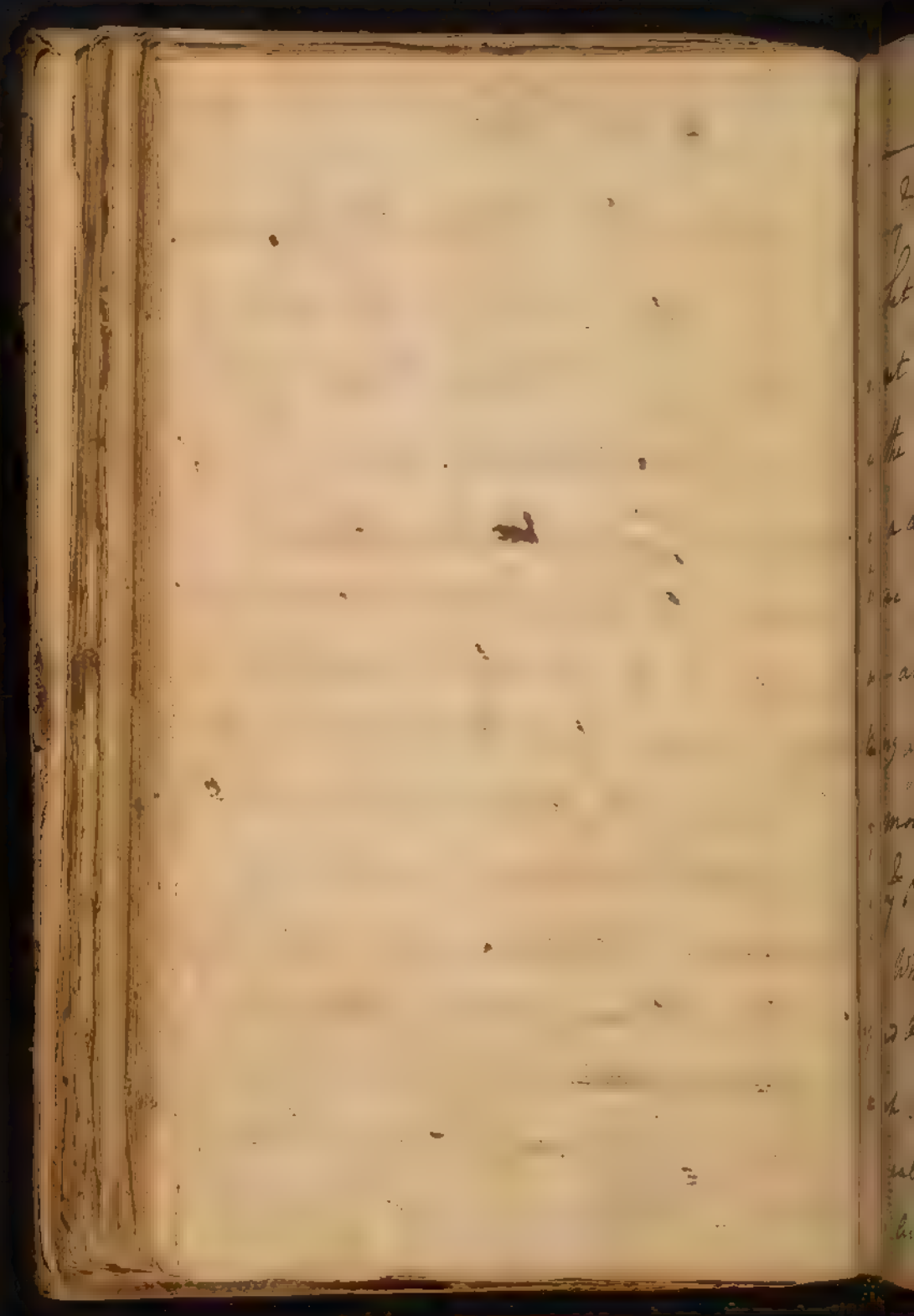
$\frac{2}{y}$ unusual stimuli wth act on $\frac{2}{y}$ Heart?

These are given than hereunderstand.



as appears from Dr. Smith's Experiments.
- we are often sure of an luxuriant
circulation in $\frac{1}{4}$ Blood. Yet no quick-
ness of Pulse attends it, as in Cases of
Treharia Quercy the Grundice &c.

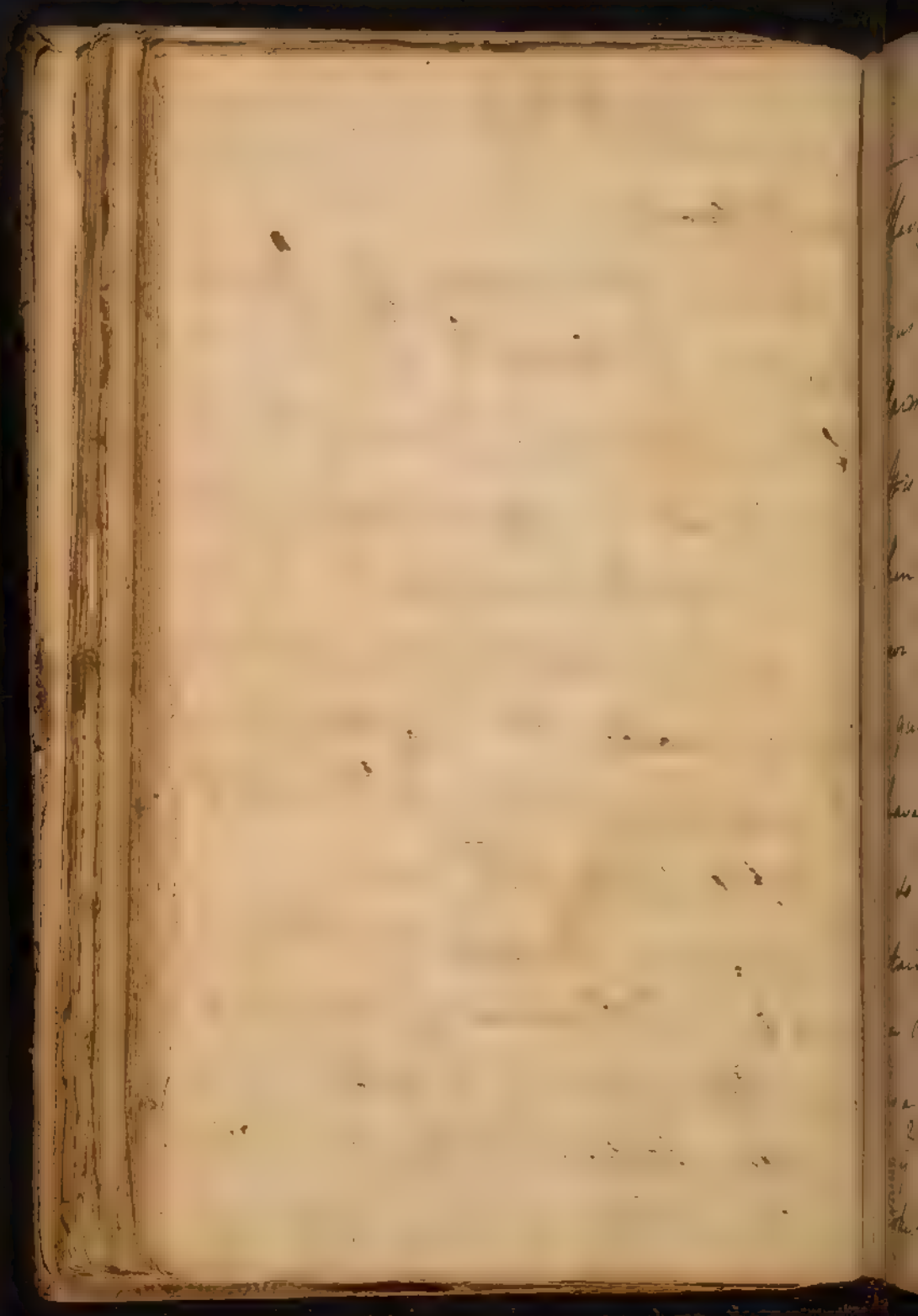
Mercury Antimony & Arsenic are powerful
Stimulants, & yet when received in $\frac{1}{4}$
Blood never affect the Heart directly.
if they ever do affect it, it is indirectly
by stimulating the Stomach or some of $\frac{1}{4}$
Vesicles. What has been said here
applies still more to the Arteries. if
there ~~are~~ ~~any~~ direct stimuli it must be
 $\frac{1}{4}$ Sedative Impression but even these
act on $\frac{1}{4}$ Sensorium first & indirectly



on $\frac{2}{y}$ Heart.

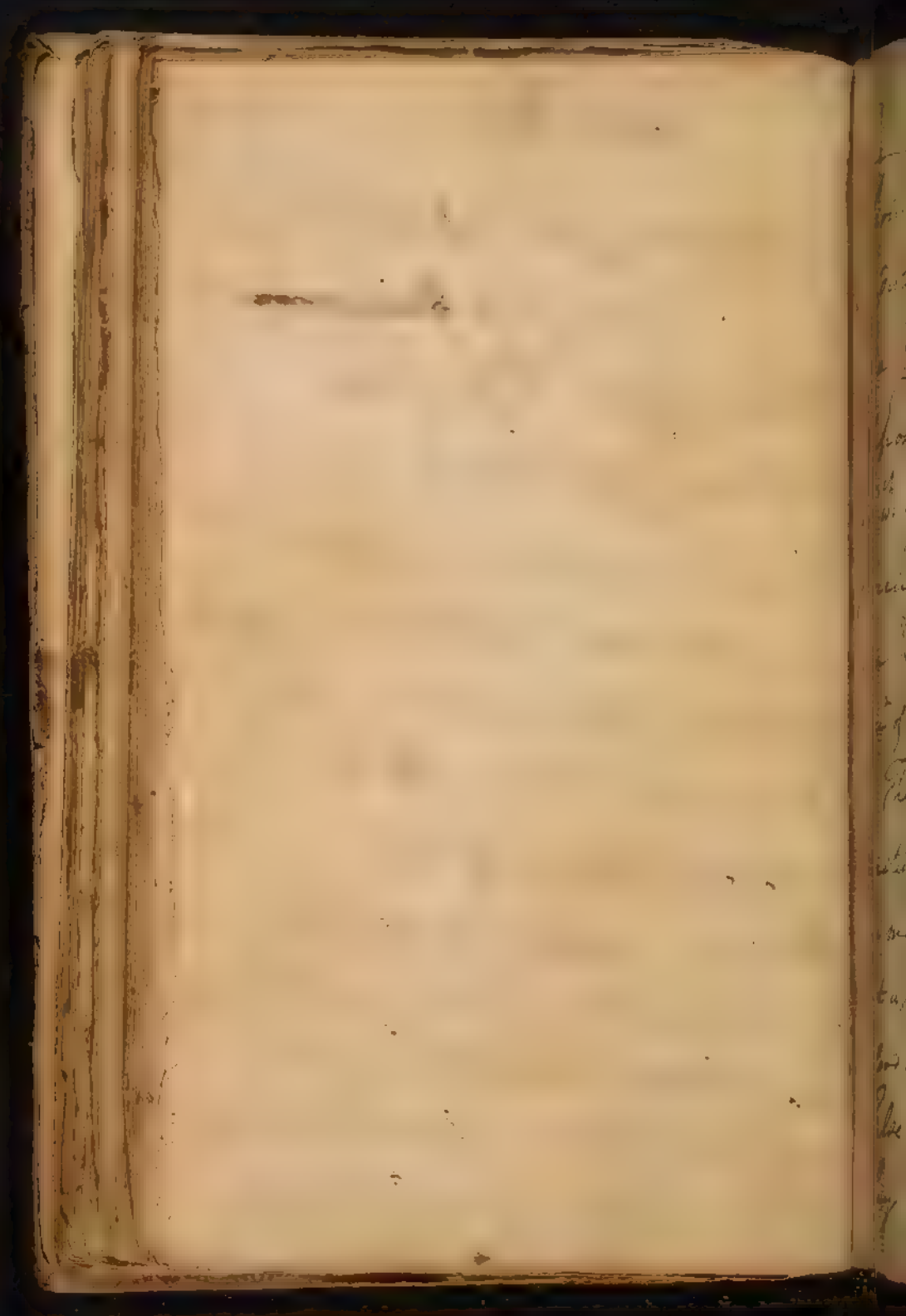
Let us now consider the Causes
th w^h act on $\frac{2}{y}$ Heart by $\frac{2}{y}$ Intervention
 of the Lensorium. These are Stimuli
 of a direct or indirect nature. the
^{1st} are originally stimulating; the last
 are at first sedative but prove stimu-
 lating afterwards. the ^{1st} of these prove
 $\frac{2}{y}$ most frequent Cause of $\frac{2}{y}$ Quiescence
 of $\frac{2}{y}$ Pulse such as Fever &c.

What does Irregularity of $\frac{2}{y}$ Pulse de-
 pend on? on Pulsations not succeeding
 each other at proper Intervals? this
 is called Palpitation of Heart. It requires
 no answer from w^h has been said. See
 Dr. Ferrius § 774.



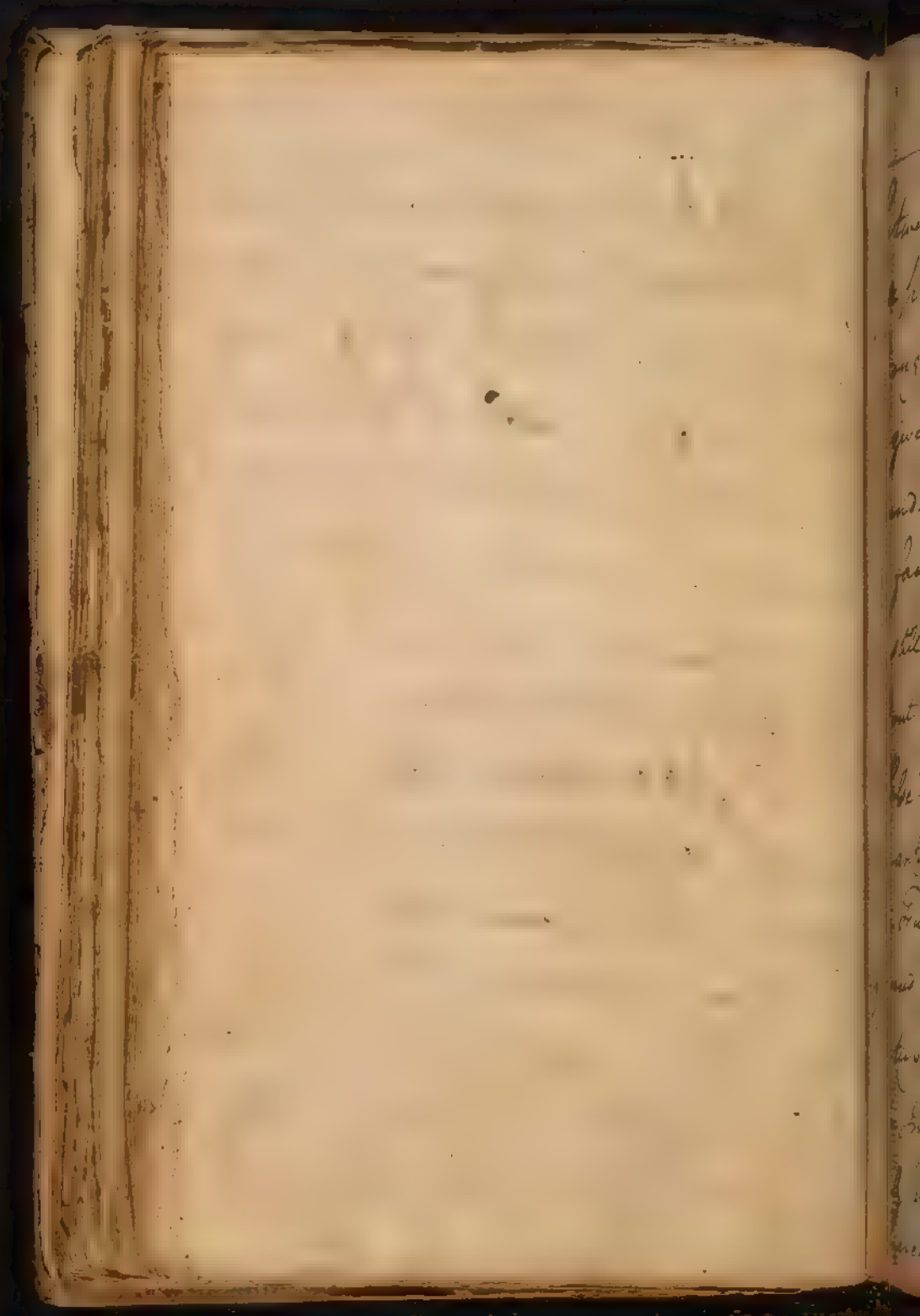
Having considered the velocity of $\frac{1}{4}$ Pulse
let us now attend to ~~its~~ its
Harsh Softness Dulness &c

It is very difficult to tell precisely
when each of these take place. some
have supposed a distinction between
a quick & a frequent pulse, but I
have never been able to perceive
it so accurately as to speak of it w:
Certainty. I always judge of $\frac{1}{4}$ Frequency
of a Pulse by its Suddenness. the blood
has a lateral propulsive motion. now
in $\frac{1}{4}$ sudden pulse we feel $\frac{1}{4}$ lateral
stroke only w: is known by its being



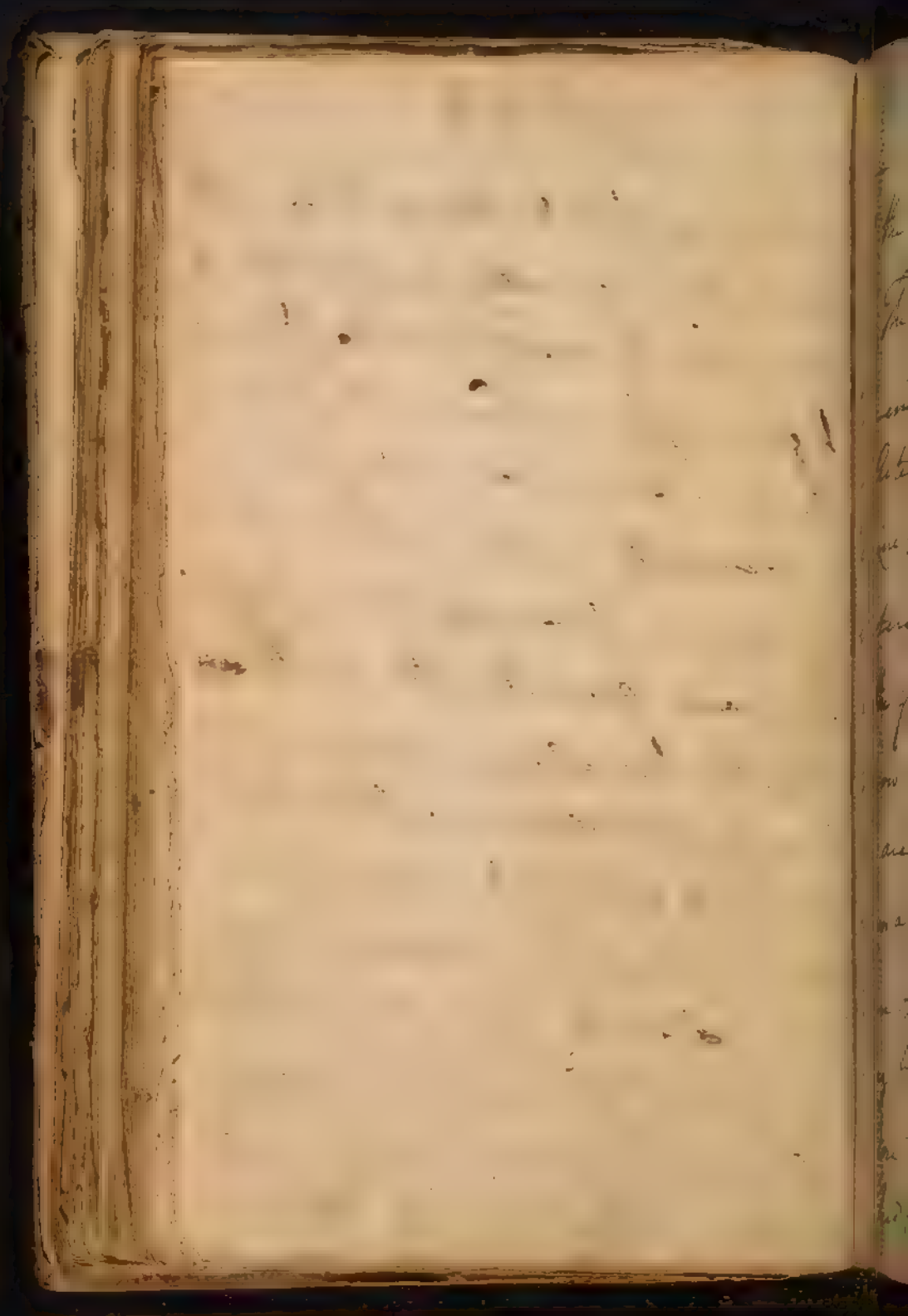
pointed & acuminate. It is commonly distinguished by Surgeons by $\frac{1}{2}$ name of a fork in the Pulse. It is generally opposed to $\frac{1}{2}$ is called $\frac{1}{2}$ andore Pulse in w^h $\frac{1}{2}$ progressive motion is evidently perceived. You must consult your own Experience for a more accurate list of these Distinctions.

- The full & strong Pulse are often united. the full Pulse depends not on more Blood evacuated from $\frac{1}{2}$ Heart but upon Resistance in $\frac{1}{2}$ Course of the Blood. this is evident from $\frac{1}{2}$ all Pulse w^h follows Ligatures. this lays a Foundation for a Distinction



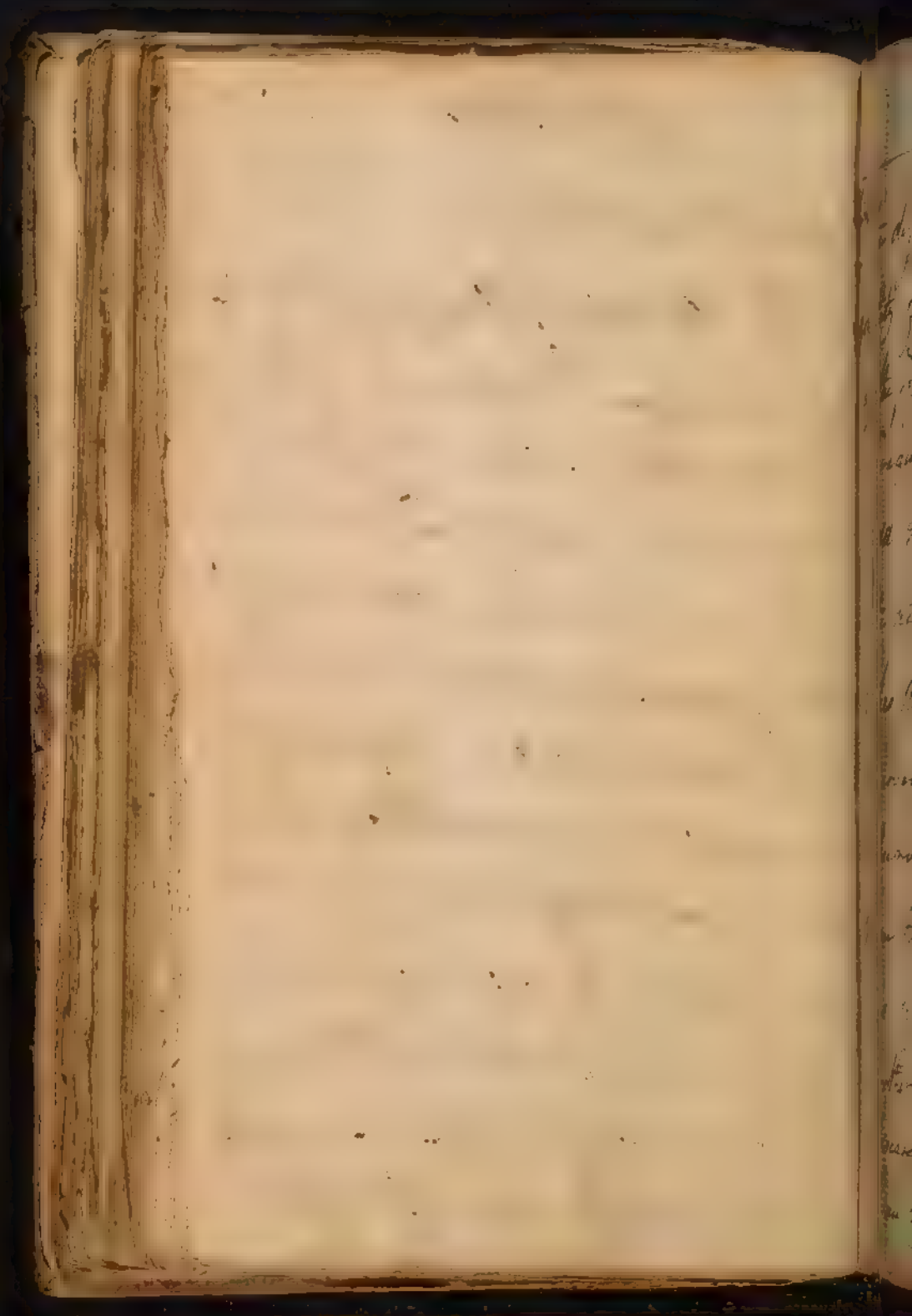
between a full & strong Pulse. the full pulse is generally slow & soft. the strong for the most part hard & quick, & gives a sense of Tension to ^e the Physician's Hand. a strong hard pulse is always a favourable Symptom in Fevers but it is still more favourable if it is full only ^{tho} without any great Strength. a full ~~full~~

Pulse does not always indicate a great Quantity of the Blood in a Patient as the Fullness of the Pulse is greatly influenced by the Size, Situation &c of the Artery ~~of~~ at the Wrist. the full Pulse in Inflammⁿ. however likewise depends only upon ^a Resistance & not upon an Increase of the Quantity of ^e the Blood or

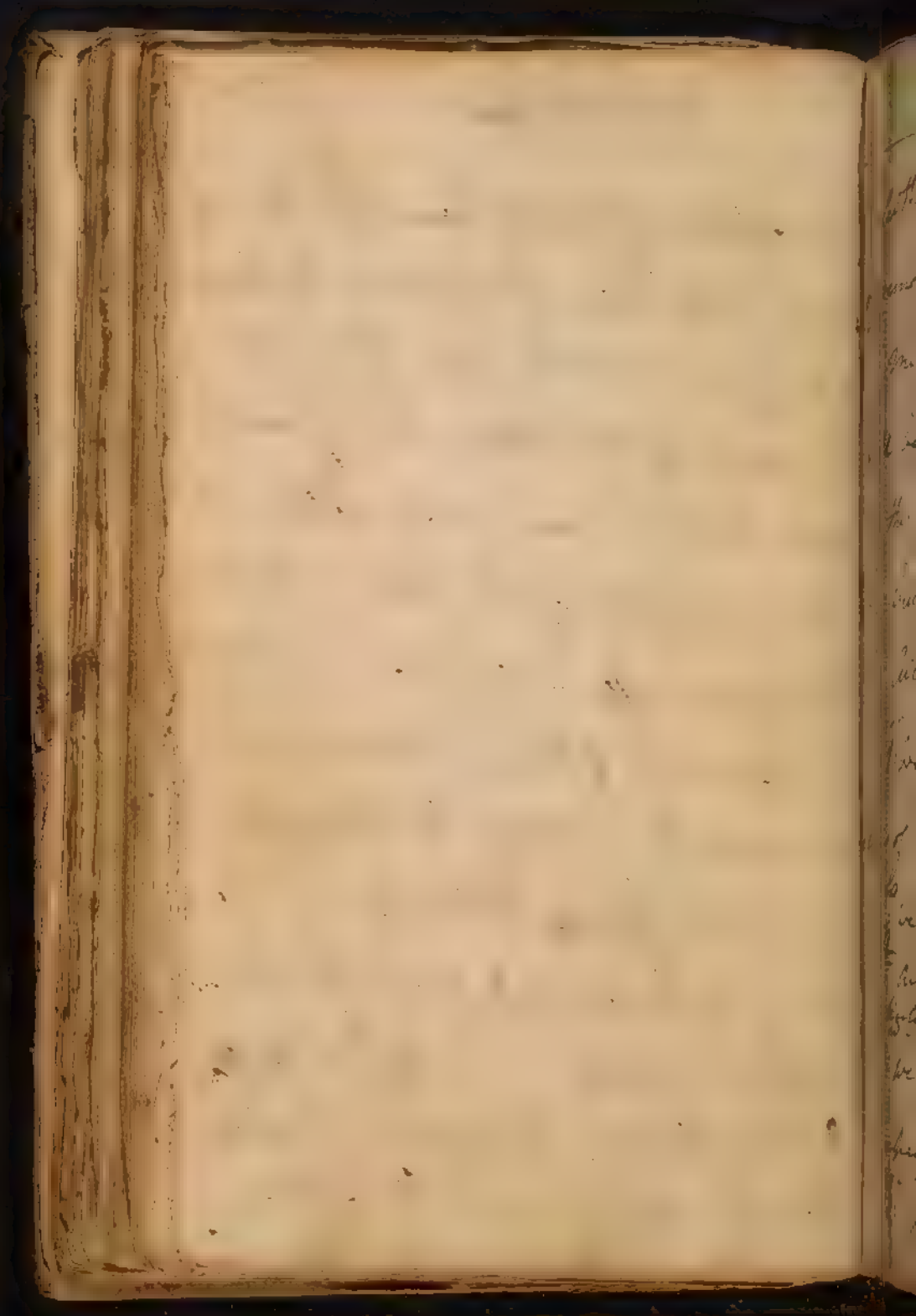


of the Heart's Force.

The Hardness & Softness of $\frac{2}{3}$ pulse depends upon $\frac{2}{3}$ Muscular Fibres of $\frac{2}{3}$ Arteries themselves. the first is owing to an Excess of Tension in $\frac{2}{3}$ Arteries. the last to a want of it. It is the greatest Desideratum in Medicine to know when $\frac{2}{3}$ Pulse is hard & soft & w^h are all the intermedi^{te} Degrees between a hard & soft Pulse. I conclude then that a 10.000 Circumstances vary the Pulse, & that nothing is more difficult than ^{to} form a regular Judgement of Diseases from it. I



the different states of Equality & Inequality of the Pulse w^d indicate the state of the system much better than the Frequency of the Pulse. here I must add that I have never observed the nice states of the Pulse Lolano takes notice off, or if I have by accident discovered any of them I have never observed the critical Discharges follow them that Lolano takes off. perhaps this may be entirely owing to our Northern Climate in w^h Fevers & other Diseases observe less regular periods than they do in warm climates.



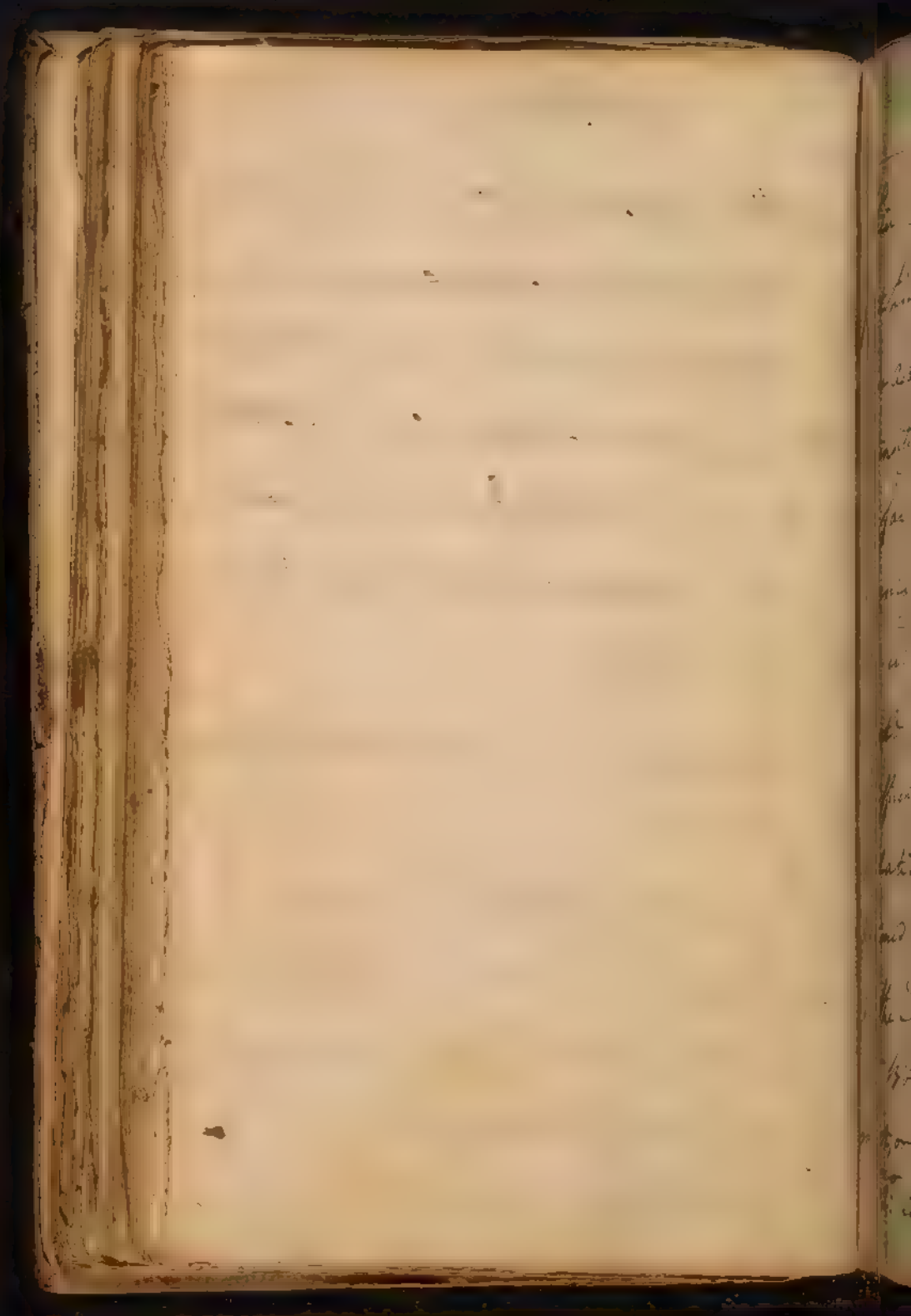
As tho' I said before γ of $\frac{2}{2}$ Conductions
 of remote causes would come under
 $\frac{2}{2}$ γ Methodus inveniendi, yet I think it
 will be of use to treat of a few of them
 in this place. The subject is very extensive
 — but I shall confine myself only
 to Air & Diet.

1: We shall treat of γ $\frac{2}{2}$ Sensible Qua-
 lities of the Air.

2: We shall treat of γ $\frac{2}{2}$ Properties of
 γ Air by γ $\frac{2}{2}$ I mean its Density &c.
 & light &c.

3: We shall take notice of γ $\frac{2}{2}$ Air as
 impregnated wth foreign Bodies.

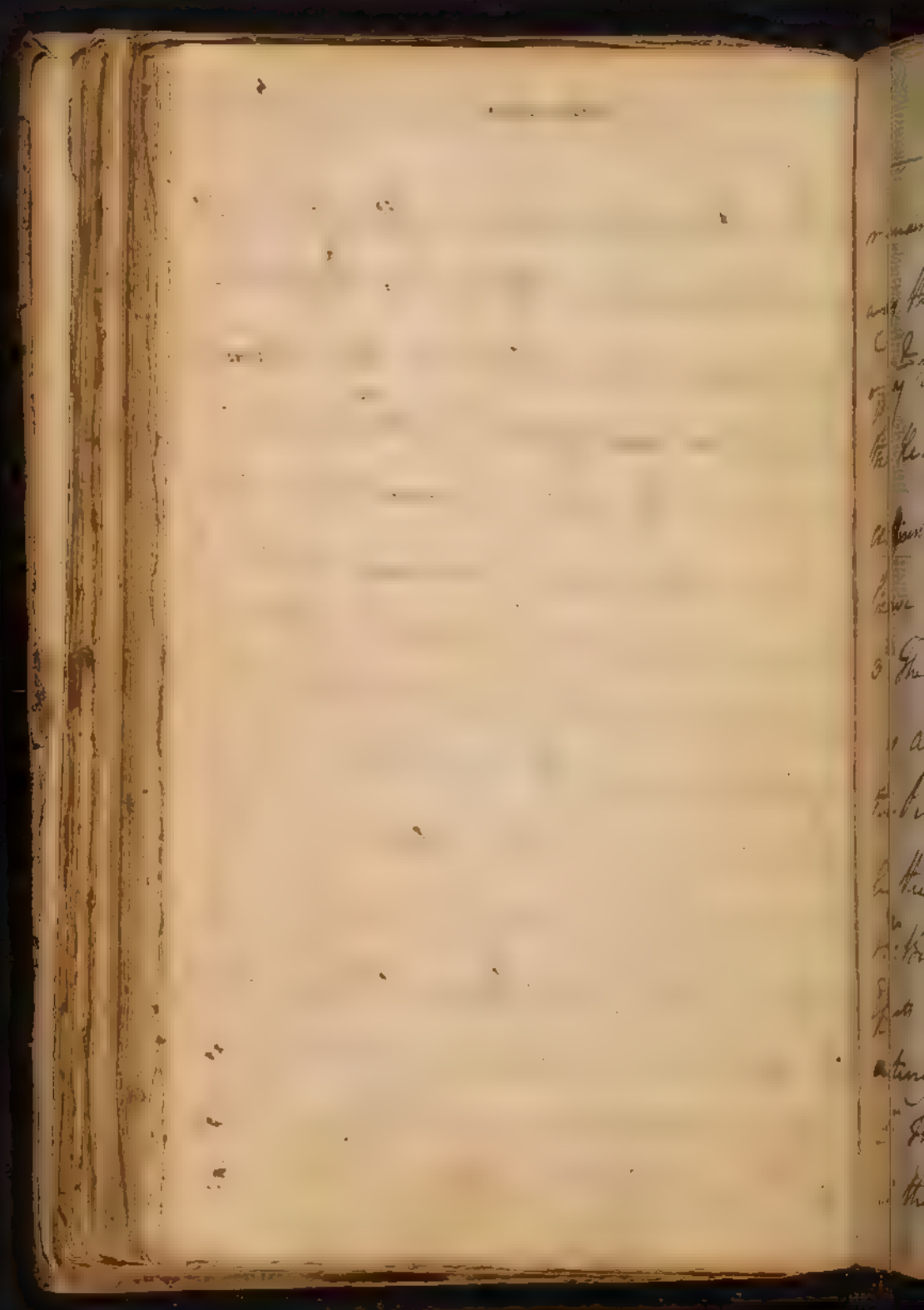
1: Heat & Cold are very extensive in



of ~~Heat~~ Heat & Cold 513

Their Operation, and act differently in different times even in the same Degrees.

Their Action is diversified ¹ by their Degree of Intensity as expressed by ² Thermometer in as far as the body is considered as inanimate, or as a common Mixture. There are ² w: are called ² Absolute Effects of Heat & Cold. But ² they both operate differently on an animal body viz Relatively. i.e. their Effects are proportioned to ² generating power of Heat in the System. w: Degree of Heat gives the body its uniform natural Temperature, or neither increases or decreases it? in 62° in this Climate. The body always



remains at 98° in this Temperature.
 any thing beyond this encreasing Heat
 of $\frac{2}{3}$ body. any thing below 62° below
 the Heat of the body. This may be very
 different in warm climates. but we
 have no Experiments to determine this.

3.^d The Effects of Heat & Cold are diversified
 as acting on sentient Bodies. & hence
 the Perception of them both are diversified
 by the States of the sentient Structures.

4.th But all we have said concerning $\frac{2}{3}$
 Effects of Cold will be diversified by their
 acting differently on the Solids or Liquids.

5.th They will all be diversified by $\frac{2}{3}$ power
 of the System to resist or receive them.

(a) Heat Beyond $\frac{1}{2}$ Ordinary Heat
the body acts as a stimulating In-
flaming Impression, bringing on
blisters &c. if it should ever arrive
at 150: the serum w: be in Danger of
being coagulated. —

of Heat Absolutely considered.

respective Effects. —

we shall now speak in particular of the Effects of Heat &

1st we shall speak of its Absolute Effects upon the body. I formerly supposed

there was a subtile Fluid in $\frac{2}{3}$ of the

^{the} w: was under the Influence of Heat & Cold. this Fluid is a portion of in-

animate matter. Heat therefore acts upon

it & gives it greater Elasticity &

Rarity ^{the} w: induces mobility in

general or Sensibility & Irritability as

far as it depends on Sensibility, &

2nd Absolute Heat gives Expansion to $\frac{2}{3}$ of the

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Solids. w. induces laxity - a want of Tension, & in consequence of their Mobility & Contractibility.

3.rd Absolute Heat operates on our Solids as a Mist & expands them to a greater Degree, & hence induces an ^{ch} less in ^{them} Fluidity, w. disposes ^{it} more readily to expand the Solids.

4.th Absolute Heat acts upon our Solids as Mists capable of intestine Motion. i.e. hastens their Putrefaction, or the Evolution of a deleterious Matter w. ^{ch} likewise still further increases the Fluidity of our Blood.

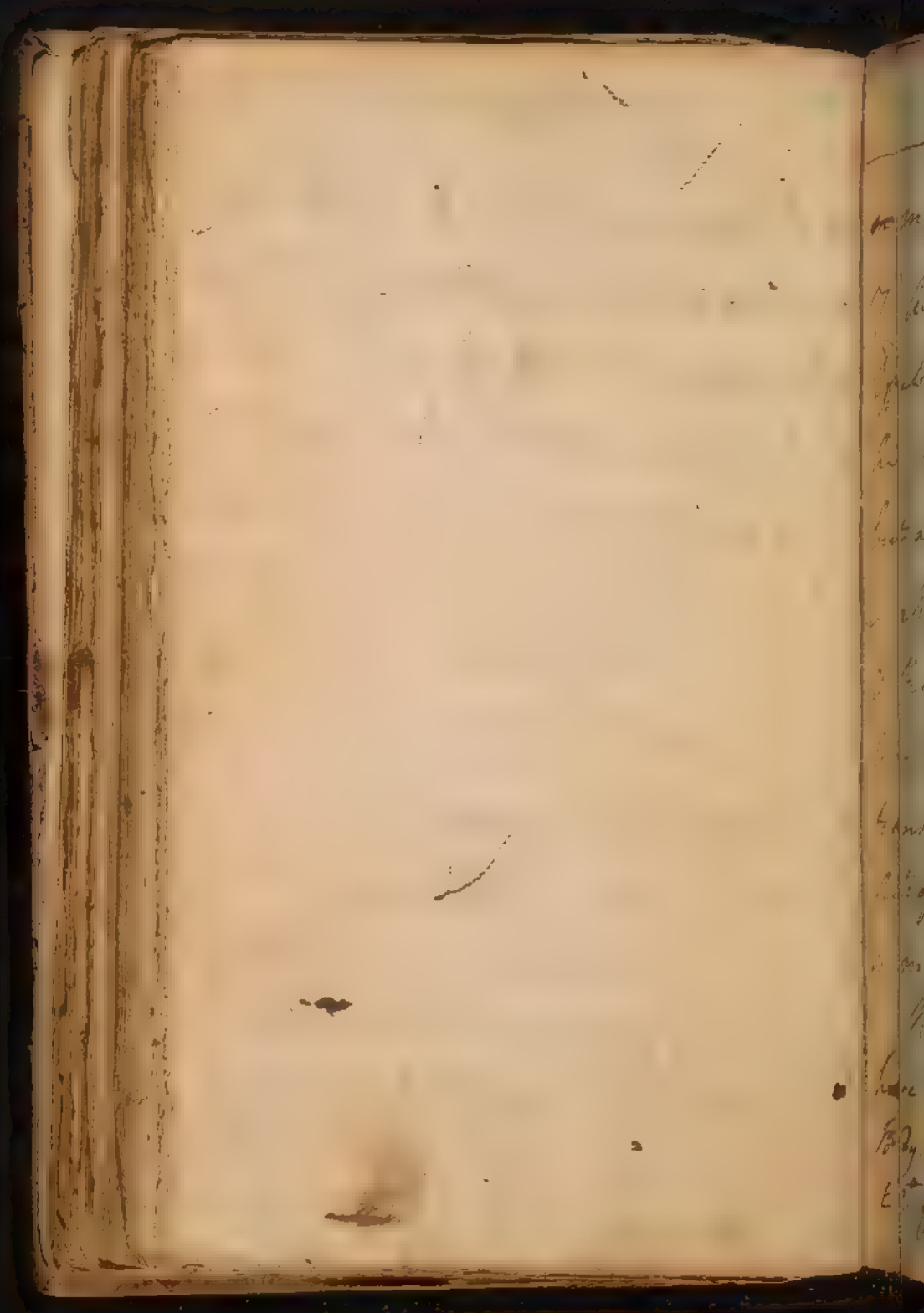
5.th Absolute Heat moves a Stimulus

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of Absolute Heat 517

to γ nervous system, & by this means,
accelerate the Circulation of γ L^e fluids,
which shows its Effects on γ surface
of the body, upon γ L^e L^e of γ Heat
being applied originally there, as
well as upon γ L^e of γ natural
Tendency of the blood into Circu-
lation to the Skin.

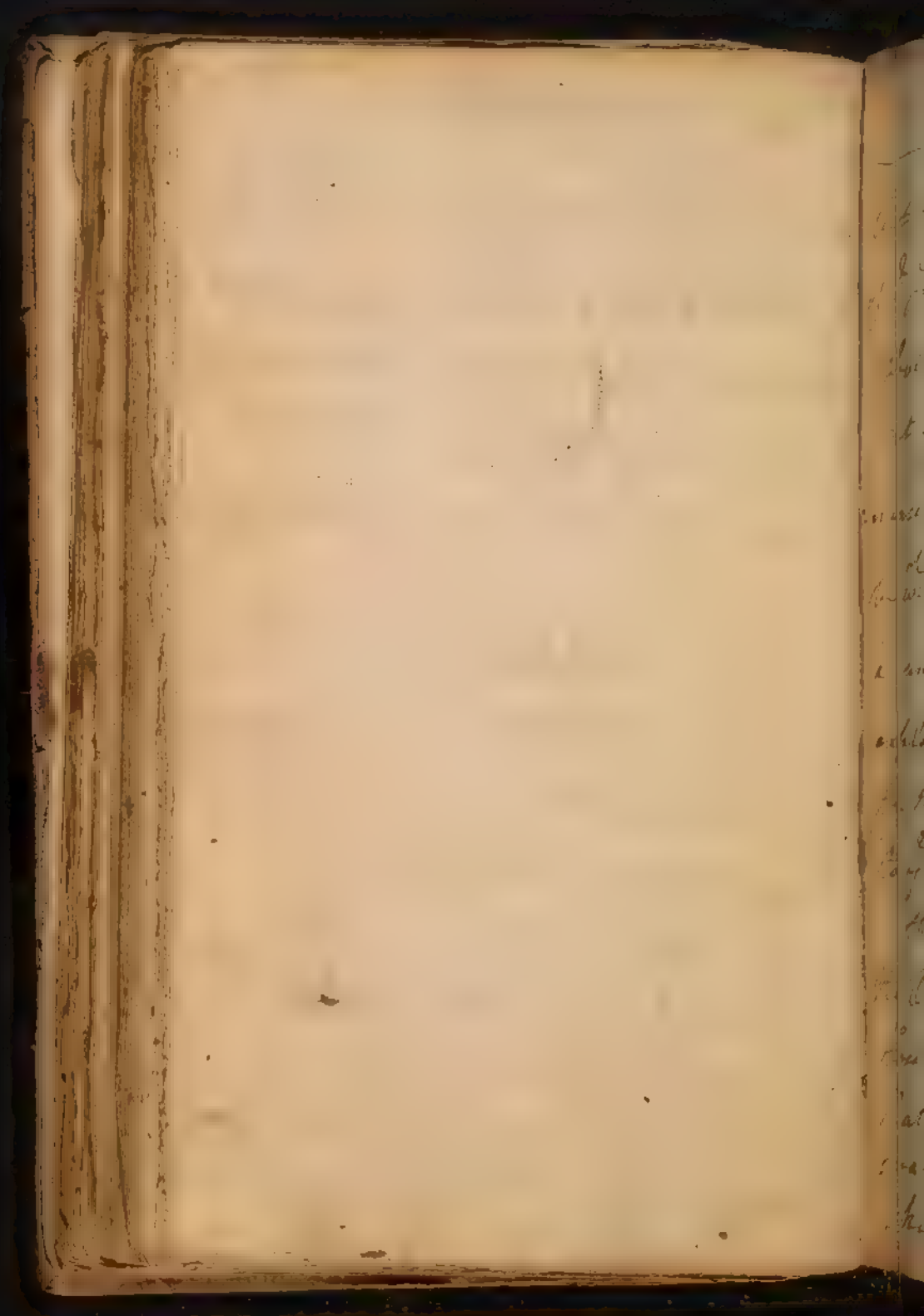
6th Absolute Heat as involving a saline
matter increases its natural Acrimony.
 W^e Acrimony acts more in proportion to
its being concentrated. Heat dissipates
 γ more fluid parts of the blood & thus
increases its Concentration. This L^e
for γ Acrimony of γ bile. ~~from the~~ L^e L^e



so much increased in summer time.

7th Absolute Heat shows considerable Effects in Respiration. dense & cool air we know favours Respiration, but a hot air ^{is} is always rare is always introduced in ^{of} Quantity & before the Dilatation of ^{the} Lungs occurs. Hence the Blood is more difficultly transmitted thro' the Lungs. It upon ^{the} ^{of} its quicker Circulation in ^{the} System it is more apt to stagnate there.

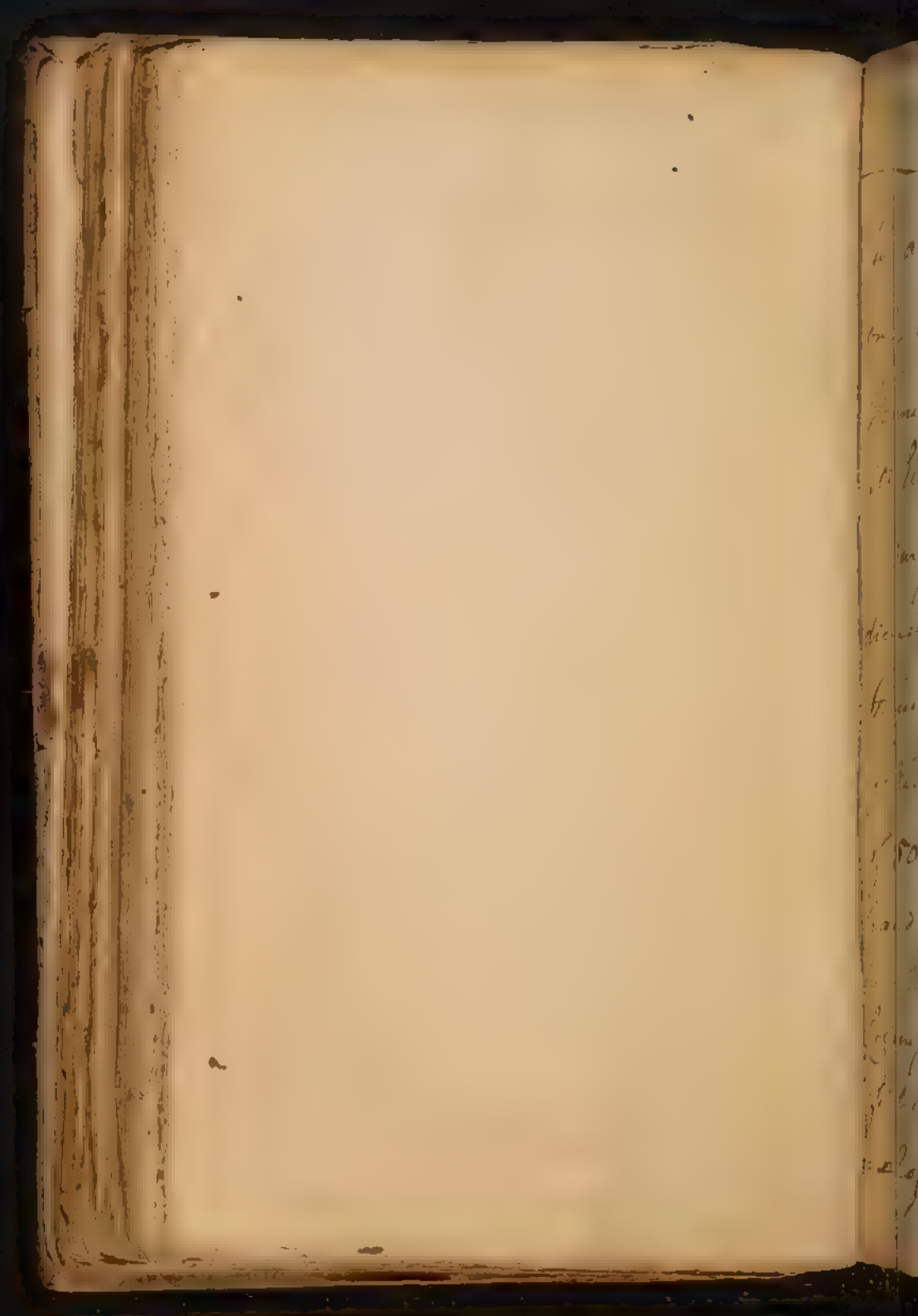
But all these Absolute ^{Effects} of Heat have relative Effects on an animated body. Very Temperature of ^{the} air beyond 62nd ^{degrees} shows ^{the} Absolute Effects of Heat,



of Relative Heat.

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Less diminishes the generating power
of the system is: in some measure
obviates the Absolute ~~the~~ Effects of Heat.
But a Degree of Heat in low Objects
increases the generating power of the Body.
As we mean it is generally kept in
a uniform temperature. I formerly
explained the Reason why the Heat of
the Body is not increased in proportion
to the Heat of the external Atmosphere.
The Absolute power of Heat by rendering
the Matter of our bodies too rare prevents
these strong Excitations on which animal
Heat depends. we have a beautiful
analogy of something of the same kind
taking place in a globe of Sulphur.



is a accumulator & retains the heat in it
only in a certain state of density. The
moment we warm it, & it loses
its electric matter.

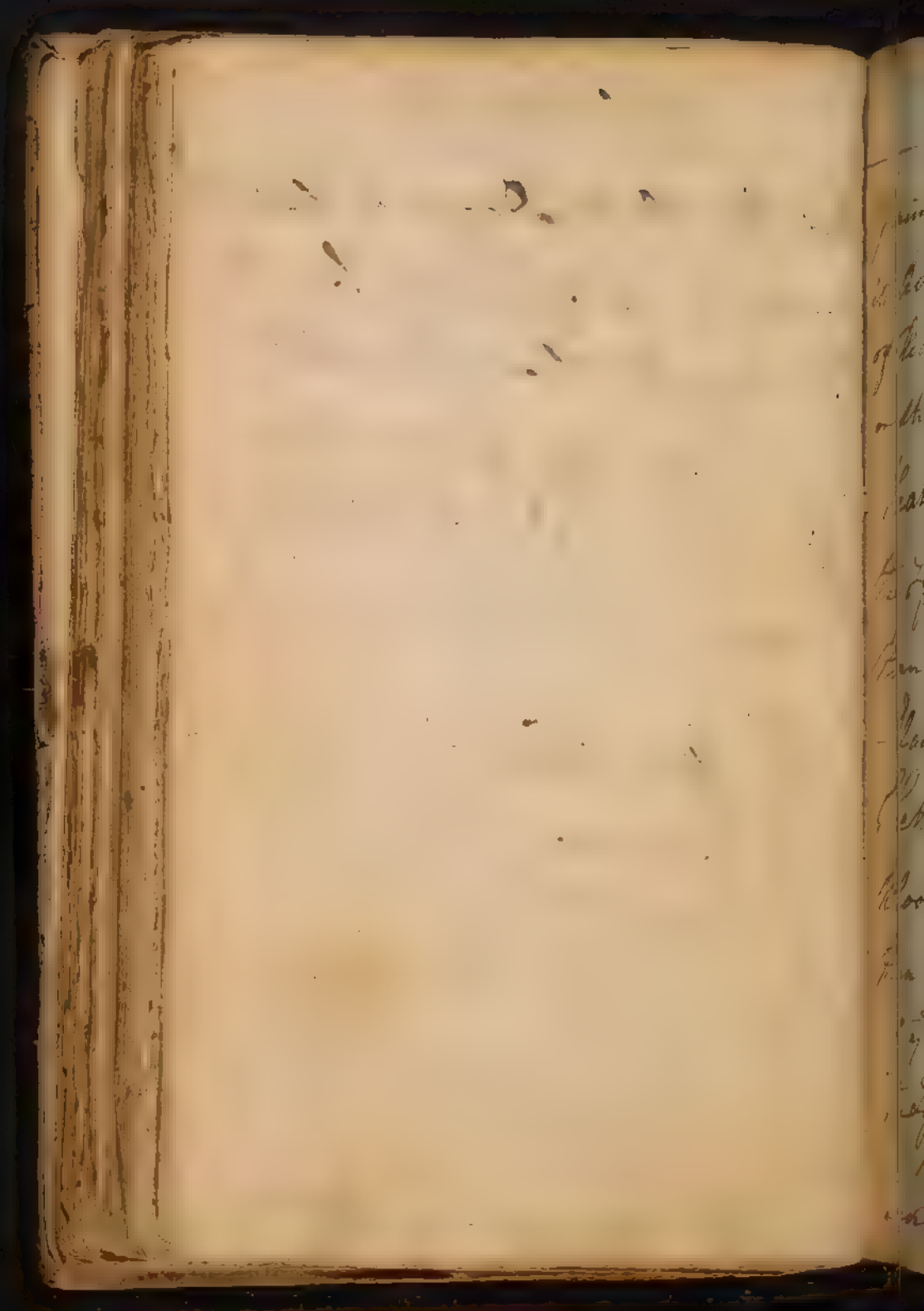
Our sensations of heat are greatly
diversified by the state of our bodies.
Thus if I take 3 cups each of them
filled w. water one of 60° Another
of 50° & the third of 40° if I put my
hand in the first of 60° I feel it
in the 2nd of 50° I feel an evident
coldness, & true vera if I plunge it
first into the one of 50° & then in the 3rd
of 40°

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But the Absolute Degrees of Heat still continue to operate, for the Effects of the Heat from 60° to 70° are considerably greater than ^e of Effects from 50° to 60° . Altho the Sensations may be nearly the same.

The Effects of Heat are likewise diminished by the Ordinary Temperature w^{ch} is agreeable to the Body. Thus a Change of Heat from 50° to 60° is scarcely perceived, but a change from 60° to 70° is sensibly felt.

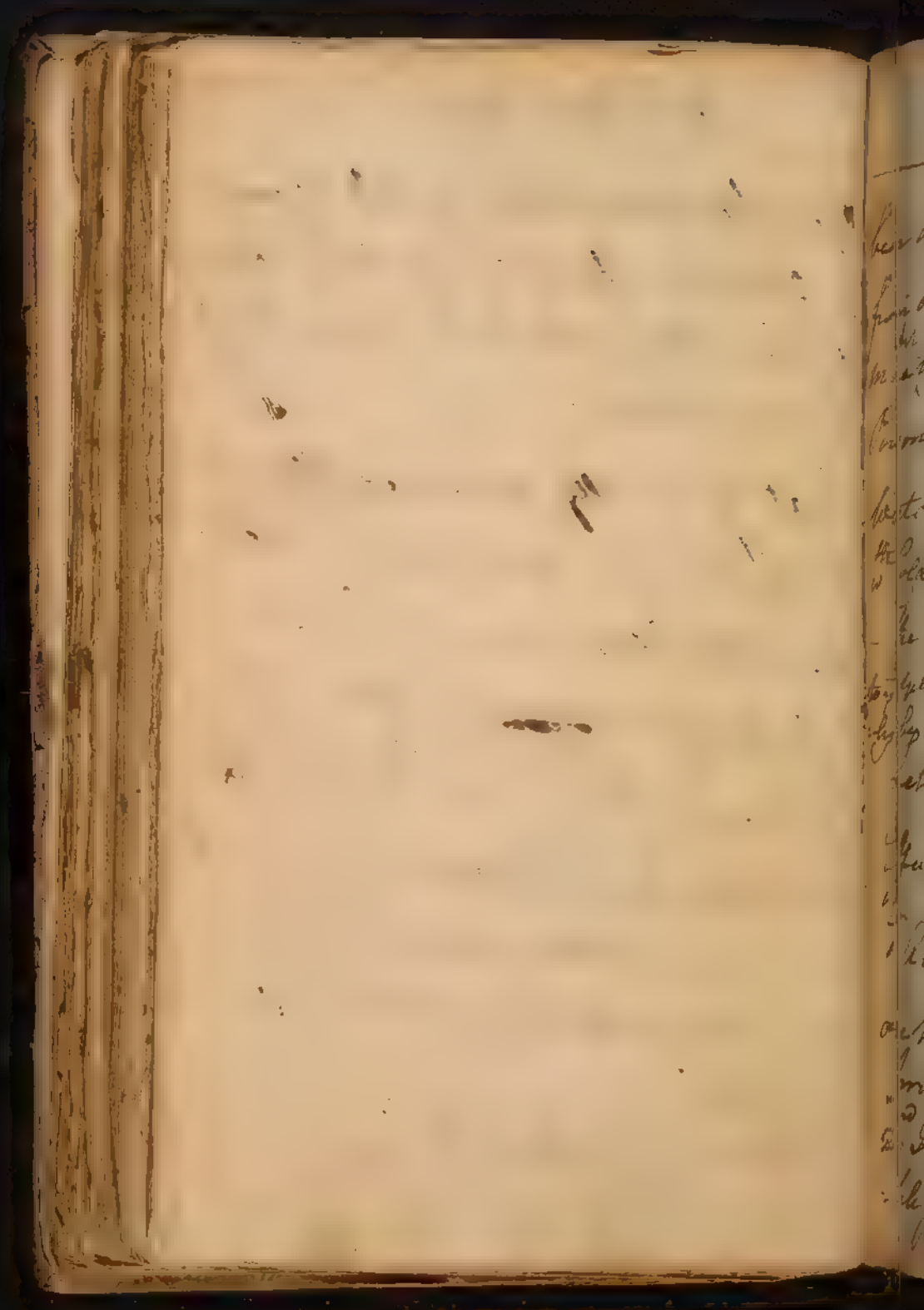
Heat is never so powerfully on



painful Impression untill it exerts
its Absolute Effects. It is only a degree
of Heat above 98° that proves painful
or stimulating.

Heat generally acts unequally upon
the System i.e. more upon $\frac{2}{3}$ Fluids
than the Solids inducing Expansion
- Elasticity &c. upon in them. hence
Plethora's & Accumulations of
Blood are more frequent in $\frac{2}{3}$ Spring
than at any other season upon $\frac{2}{3}$ Aut.
of $\frac{2}{3}$ Heat not acting equally upon
the System.

Heat acts differently upon System
according to $\frac{2}{3}$ Temperature they have.



Relative Heat

been accustomed to. Thus a man going from our Climate to West Indies is more to be affected wth the heat than a Person born there, while a native of the West Indies is more apt to be affected wth cold here than a native of Britain - The Reason why Strangers are so subject to Yellow Fever in West Indies may easily be understood from this. The Climate

Let us now speak of $\frac{2}{7}$ Absolute Effects of Cold.

1 Absolute Cold condenses ² & Othens of
our Nerves & thus lessens Sensibility &
Irritability.

2: It gives a firmer & more tension
- ple solid, th w: gives more quick cord

as $\frac{9}{10}$ of mankind live in a degree
of heat below 62°

Absolute Cold

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strong Oscillations ^{ch} w: in some measure
obviates the Immobility induced by ^ery.
Cold. it never sinks ² of generating
power of Heat below ^{to} 98°: no more
than Heat increases it.

3rd It condenses the Fluids & acts the
Reverse upon them to ² w: we said of
Heat. —

... There are many Means of Obviating
the Effects of Cold in our System. — a,
1st It increases the generating power
of Heat when applied in a certain de.

= 99th.

2nd It is a powerful Stimulus & prompts
the System to exercise ^{ch} w: we know

(as) not only so but it actually stimulates the system itself. This every one must have experienced after plunging their hands in snow, or very cold water. —

of Absolute Cold

obviates the Effects of Cold. 1st

3rd Generous Perspiration w^{ch} acts as
a warm Bath to the body. This Atmos-
phere is confined by our Cloathing. y^e
Cloathing is warmest there w^{ch} receives
& propagates Heat most such as Wallenbe-
- the poorer a Garment is the warmer as
it confines more Atmosphere ⁱⁿ it. the
Chinese all wear Garments of this
kind lined wth Furr. Blankets are
always warmer, the poorer their texture
are. Our Houses likewise grow warm
by confining Our Atmosphere. Hence
y^e greater number of People in a
Chamber the warmer it becomes.

4th The Effects of Cold are Obviated by

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Artificial Heat.

The Effects of Cold ~~not~~ independent
of its acting as a sensation are

1st To induce Constriction in all irritated
parts such as $\frac{1}{2}$ Lungs, & sometimes
all ^{over} the surface of the Body. in this
manner it often brings on Fever.

2nd This Constriction determines $\frac{1}{2}$ blood
more plentifully into the viscera. dimi-
nishes Perspiration & increases $\frac{1}{2}$ Urine,
as well as $\frac{1}{2}$ Perspiration from $\frac{1}{2}$ Lungs.
- It likewise determines $\frac{1}{2}$ blood to
 $\frac{1}{2}$ Joints, & hence the Cause of Rheu-
matism.

3rd Cold acts unequally upon $\frac{1}{2}$ System.

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Viz: condenses the Solids, while the
Fluids remain the same, or rather
are often rarefied by the Heat generated
by the Stimulus of the Cold. From this
you will easily understand the Theory
of Inflammⁿ in general & of Rheumatism
in part: especially when the Cold is
applied to One part of the Body Only.

But 5th the Effects of Absolute Cold are
diversified by the different States of Excite-
ment in the Lymphaticum. Cold we know
tends to destroy the Probability & Excitement
of the nervous Matter, but from its Stimulus
it often rather induces an Excitement
of the Lymphaticum than diminishes it ac-
cording to the different States of the System. It

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depends upon the nervous ~~Other~~ being in
different Capacities of being acted upon.

- I am sorry I am obliged to conclude
this subject so abruptly, but I am re-
-specially called out of town. & as the
Season is so far advanced I shall pro-
-ceed next to the Methodus Medendi.

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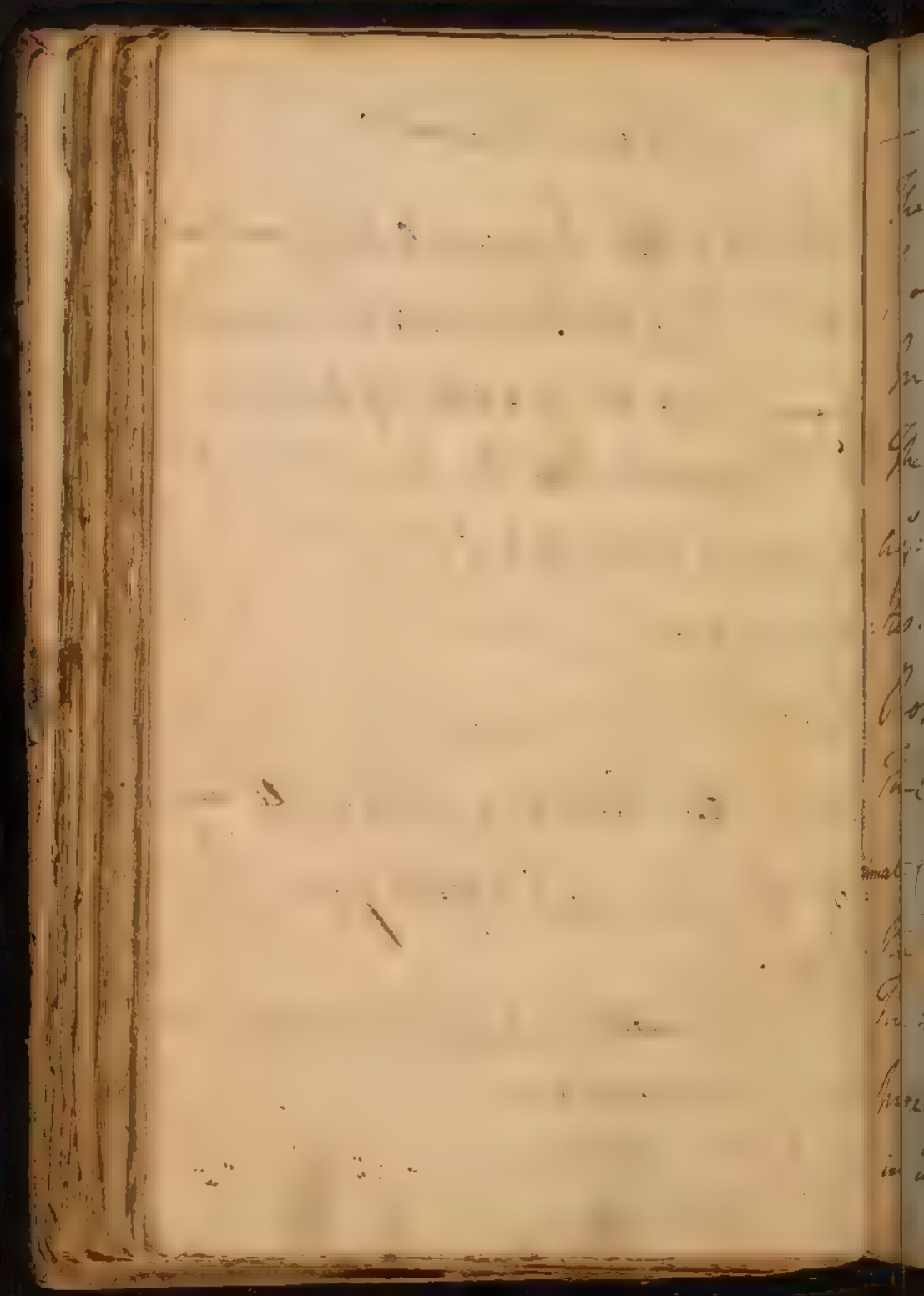
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Methodus Medendi

This is either Empirical or Dogmatical
 The 1st Regards no Indications nor does it
 enquire into the Qualities of Medicines
 The 2nd enquires into the Operation of
 Medicines & the state of the ^{ch} system in w:
 they are given. I am determined to
 treat the Subject now under Consider-
 ation in this last way, but shall derive
 all the principles I offer you from
 Experience.

The Method. Med. has been divided into 4
 parts 1 Conservatoria
 2 Preservatoria
 3 Curatoria
 4 Mediatoria.



The 1st Relates to the Preservation of the
Powers of Life. It is sometimes called
Inductio Vitalis

The 2nd consists in defending the Body
against the Action of the potentia nociva.
This is likewise called *Inductio
Prophylactica*.

The 3rd consists in changing the prox-
imate Cause of a Disease so as to restore
the Body to Health.

The 4th Is when we don't know the
proximate Cause or cannot reach it,
in which Case we order Palliative Remedies.

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These Divisions of the Methodus Medendi are unnecessary. the 3.rd or Indicativa Curatoria comprehends all y^e rest & I shall confine myself ~~only~~ to it alone.

Most of our systematic writers lay down general Rules in y^e Medendi Methodus.

- in Imitation of these I shall deliver a few w^{ch} shall ^{be} very short & shall be by the way of Friction on ^{Dr. Hoffman's} Rules.

His 1.st Rule is to follow Nature. all Physicians from Hippocrite to Sydenham.

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& downwards have declaimed on this Subject. The System I grant easily restores slight Deviations of its Balance. many particulars might be bro't in Illustration of this ^{ch} w: you may recol: but when we spoke of the Action of Heat & Cold. many remote Causes of Diseases excite the System in such a Manner as to remove themselves.

in a word then it appears very evidently that there is a "vis Naturæ Medica" but still I say the powers of Nature have been too much extended.

^(2nd)
 The Stahlian imagines the Loell
 acts in curing all Diseases. & do not
 suppose it depends upon the Mecha-
nism of the body. There are many
 Diseases in w^h the Efforts of nature
 do nothing such as Palsy. Apople-
 xies. & many Spasmodic Disorders.
 - Schirri &c. But the Efforts of na-
 ture are often fruitful. even y^e Stahli-
ans acknowledge that there "Anima
 Medica" commits Mistakes. Physicians
 I say then have talked too extravagantly
 of the powers of nature. The progress

There understand y: I believe all
Nature to be under the Administra-
-tion of a Being infinitely Wise-
-powerful & Good - But who will
overrule even partial as as to
make it contribute to the genl.
Good of the Universe - But will
we have - we see it - we feel it -
in every Part of Nature - Storms
Thunder - Lightning - Insects &c.
are real Evils - all must confes
this - Altho' they are overruled as
as to contribute some way to the
well being of the World - To return
to enquire in w^h ~~Part~~ Diseases
Nature helps - very few - corrects
slight Deviations only - In Excess
takes away our Wholes - call
for Drinks & light Stimulant -
In wound - from Heat & Bodies

Methodus Medendi . . . 534

of Medicine in my Opinion has been much retarded by paying too much Attention to Nature & by being too diffident of the powers of ~~the~~ Art.

Dr Hoffman's 2nd Rule is to evacuate all Morbific Matters as soon as they are formed. This is a good Rule & strikes directly ag^t the former One, as it over-
throws all the supposed notions con-
cerning Concoction &c. his 3rd Rule respects the last, & therefore deserves no Obviation.

If all Pleuris sh^d pass thro' these Issues - ^{as} they are most used to circulate

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thro. thus $\frac{1}{2}$ water of a drop of sh^d. be
evacuated thro $\frac{1}{2}$ kidneys or $\frac{1}{2}$ pores of
skin.

See Dr. Hoffman's, Other
in his works. They are most of them
so plain that they require no explanation.

I shall now proceed ^{to} the
Cure of Diseases, & for $\frac{1}{2}$ purpose
have given you a Table w^{ch} com-
prehends all $\frac{1}{2}$ Medicines used in
curing Diseases of the Solids & Fluids.

excites Inflammⁿ - In Pleurisy
Vomiting & a dry cough.

1 In W. she does no good - In
some we shall find inactive -
- some want Wisdom - others
Power - others Goodness -

1 Inactive - small pox - no
notice when ^{the} contagion is near? -
- no Respiration etc - The same
many times.

2 Wisdom - ~~both~~ ^{both} ~~times~~ ^{times} - Dysentery
weakens the system -

3 Power - cannot often overcome
the cold Gilt & are Intermittent. won't
allow Drin^g etc.

4 Goodness - neglects to furnish us
int. count. for our Decays - but
 seldom shares us in all.

Indicationes Curatorum

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I In Morbis Solidorum

1 Simplicium

A suppletur materiam deficientem per
Nutrientia

B abrumere superfluum per
Erodentia

C roborare lacem per
Astringentia

D lacere rictum per
Emollientia

2 Motuum

A coeere Motum hoc
Stimulantia

B minuire motum per
Sedativa

C coeere Motum inordinatum per
Antispasmodica

II In Morbis Fluidorum

1 alterare vel immutare

A aggregationem

2 Dispersionem hoc

Alterantia

3 tenuem per

Insipiantia

B misturam inascentem correctione seris

Shall now point out a few
Diseases in which the 1st but not
one two or all these appear.

1. Fever. Nature exerts herself
only partially to evacuate & debilitate -
some Determinations to Brain
Vessels & Bowels which bring on the
worst of Consequences - In Intermitting
the frequency of Paroxysms instead of
decreasing the fits increase ⁱⁿ and
in Obstructions - Dropsies &c. - In
Feveres. Delirium or Insensibility
nothing called for - In Inflamm.
Nature tends to suppuration & Gangrene

2. Plethora. Nature combats it -
not thro' the pore - but into the
Brain or Lungs. --

3. In Hypochondriac Melancholia

a generatim her

Demulcentia

b speciatim per

a Antacida

b Antialkalina

c Antiscorbutica

2 Evacuare

A Humorem crassum omne

a Mucum

Euthima &c

b Salivam per

Sialagoga

c Urinam per

Diuretica

d Perspirabile per

Diuretica + Diaphoretica

Sanguinem per

a vias naturales her

Emmenagoga

b vias artificiales her

Phlebotomiam &c

F. Locum her

Vesicatoria &c

B. Humorem vatum her

a Emetica

b Cathartica

The lead us to, Blitude - low.
- Low of movement the only low.

4 In too great mobility or in want
of the stomach - Vomiting excited -
- bleeding indicated - no natural
hemorrhage. - *Antimellus megarum* -

5 In Dysentery - purging in moderate
- only to be checked by promoting
another evacuation -

6 In Palms - Apoplexies - & all the
kind of Nerv. Diseases - Nature
inactive.

7 In Hemoptoe - *Antimellus* has been
Nature overacts her Purpose -
- rough retards instead of hastening
the cure. -

every Feature of the Methodus Medendi has proceeded in the way marking out particular Indications from the several Heads of the Cause, proxima & reduce them to Classes from our systems of Pathology.

It is difficult & is far from coming under Perfection. Most systematists tho' they differ in Theory have agreed pretty nearly in this. I only give mine as a Syllabus not as a copy. I have first made a Division into the Diseases of the Solids & the Fluids.

I begin by considering the Indication of the remedium viz to supply defect in any Part. This is done by Nourishment. It is first applied to the Fluids & recedes to the Solids & Fluids when deficient.

I shall not always be able to keep to this Plan & often we must consider the Matter employed before we can consider the contraindications.

With respect to Nourishment we know extremely little of the Theory of it applied to particulars, as the Animal is nourished by grass another by other Animals. I shall consider what Experience has taught us with regard to the Matter. It is either vegetable, animal, or of an intermediate Nature.

We are told Nature errs on two
sides only - too slow or too violent -
- not so - In the cases before cited -
we must & the most humble
Minister of Nature does act divinely
in opposition to her - who would
do a ^{little} more if required & humanity
has her & the Devil - sometimes
to be turned round - Natural
ways to be distrusted - In slight
cases may do - But she can
be subjected to Theory

I think the Vegetables may be divided into three Kinds
1 Sugar. 2 Farina 3 Sil.

Whether or not there is a 4th Class of mucilaginous Matter distinct from any of these may be an Enquiry, but I think it may be reduced to one or other of the former. The Vegetable Matter is of great Diversity & various. And that many more Subjects contain alimentary Matter than what are in Use, as Woods Bark &c & we only reject soft Matter as connected with some deleterious hard. I think the three Heads I have mentioned can conclude every form we know of Aliment & To hall first consider the one we are most acquainted with.

With regard to the Farina there is no Doubt of its being an Aliment & is in the most general Use in all Nations. Sil we know is often taken in but it may be doubted if they dont only take it to moisten the solid Parts more than to furnish a Nutrient but we take it in such large Quantity & sometimes alone that I think it must enter into the formation of any new Animal solid especially as we can find it in the form of a Secretion & besides finding it in its Nature form thus used we find that it enters into the Composition of the most common aliment viz The Farina.

With regard to Sugar the Doubt may be as considerable

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Of Sugar Oil & Farina as Aliment. 540

as we dont find it employed alone as Nutriment, but we often take it in great Quantities & besides this the Pro-
perties in our Colonies are observed to become uncommonly
lost in the Sugar Season & we find at the principal Part
of Grapes, Figs & all such saccharine Fruits & are remar-
kably nutritious especially when dried. Whole Nations
live on Dates & Figs, were long the Diet of the Athletes.
It is in great Quantity in all vegetables besides being
added as a Condiment & especially the Farina contains
it in very large Proportion even prepared & can by a
Process almost entirely be converted & turn apt to
think that Farina is nutritious as it contains Sugar
& I imagine the true nutritious Matted is Sugar uni-
ted wth Oil. We know that they do not unite in the
Body when not joined before they are taken in.

In this we should expect that the Degrees of Nutrition
of Vegetables should depend upon this a Scale of the
different Aliments may be formed.

- 1st Lowest I would put the succulent herbaceous plants
as Spinage. 2^d succulent Roots. Turneps. 3^d moraceous
Fruits. Cherries. 4th saccharine fruits, Grapes.
- 5th Then Dried, Raisins. 6th Farinaceous Roots, Potatoes.
- 7th Piths of w^{ch} we have only ones, Sago. 8th Farinaceous
seeds. Rice &c of a higher Degree than the Cerealia stand-
9th Leguminous seeds, bease higher 10th Milk of an only Nature

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Almonds & lastly 11 Pure Oil itself from the Olive as a Fruit & several Seeds.

The only Instance of an intermediate Aliment is Milk, it is animal in some Measure but is from the most immediately received vegetable Matter & from analysing it we find an Acid easily evolved of a fermentative Nature containing a great Deal of saccharine Matter & a great Deal of Oil is diffused in it & the Blood before their proper Union. It has also a great Quantity of Lymph united with it & fully formed. In this intermediate Aliment we have also a Scale of Degree of Nutriment. If you separate the Oil from the Lymph, you have Serum nearly the lowest Step of the vegetable Aliment. A higher Degree is got from Whey taken from entire Milk. The serous & the coagulable Part in Buttermilk gives another Degree & this depends on the Manner it is taken as the Milk was previously deprived of its Cream or not. The Milk itself, higher still Cream & still higher Butter. As the chief part is chiefly animal Lymph, it is the most nutritious of all especially if taken from entire Milk.

I next shall consider animal Food.

Here we have Difficulties of setting Limits I believe as to regard to Vegetables they are all capable of affording

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Nutrient & we only reject them properly as containing
 Poison as the Case is of some Insects, Vermin, &c. & Am-
 phibia. The Variety of Animals extend to 6 Classes. The car-
 nivorous Animals are now generally excluded tho they have
 been used at Times. We find that there is a Degeneration
 takes Place in our Bodies from the lowest Vegetable
 Element to pure animal Matter. We can contain Vege-
 tables in our System longer than animal Food &
 especially carnivorous Animals & especially the mam-
 mals & Aves of them. & first we should choose those who
 naturally live on vegetable Food alone. Then those
 who can live on either animal or vegetable & rank
 them as we hence confine to vegetable Food alone, last
 the Carnivorous. Those that live entirely on Vegetables
 are least alkaliescent & in the Degree according to the
 Nature of Vegetables. 1st Those who live on succulent
 Vegetables. 2nd Those that live on Grain tho it renders
 many of them more grateful to the Taste & perhaps
 more nutritious. 3. The Exercise they employ ren-
 ders them more alkaliescent & is the foundation of
 the Cars ferena as the Deer differs from the Sheep.
 The Animals may differ in this Respect tho the Cir-
 cumstances are all the same as the Goat & Sheep.
 There is besides this a Difference in their Jung more
 or less perspirable. Fish are less perspirable than

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than other animal Food as Birds. Young Animals live
than old & they have been thought more nutritious, they
are of slower Digestion in the Stomach however as may
often be seen from weak Stomachs. I think this may
be explained from our Aliment undergoing a Change
to a saline State. It more or less difficult evolution of it
to get it to pass off by the secretion I imagine may make
the Difference. I must now speak of their Use to supply
Deficiencies. Here I might enter on the whole Extent of
Dietetics, but it is too large. I shall only speak of them as
Remedies for particular Deficiencies.

The general Effects of the Nutrients are to fill the Vessels
by supplying the Quantity of Fluids, & the chief Effect
of this must be to increase the Tension of the System, & as
you know greatly increases Strength & it must by dis-
tending the Blood vessels & Heart prove a considerable
Stimulus to the whole System & also they produce
these Effects by operating directly on the Stomach, which
affects the Tension of the whole so much & by stimulus-
lating it more or less they also stimulate the whole
System. This is the general Operation of the Aliment
but it is difficult to explain when we consider it more
particularly.

The Action of the Stomach seems to cause a Fever in

[illegible]

Effects of different Aliments

544^c

the System in every particular first producing a cold or chilliness, in some Degree & then a hot fit. This I think is caused by the Action of the Stomach & causes a greater Flow into the Stomach & in some Measure into the Viscera. This may be in a great Measure from its Distension, but I think it must also act from its Muculus as an acid, as we find the Fever vary from the Nature of the Food. It is greatest after eating animal Food. Both animal & vegetable Food contain saline Matter & this is evolved in Digestion but this saline Matter appears considerably different in its Power of stimulating the System. The vegetable food contains acid substances very dilute & possessed also of some Degree of a Sedative Power. Mineral Substances contain a more Stimulating saline Matter & that evolved too in a great Measure.

I would carry this further & say that the Difference in the stimulating Qualities distinguishes the several animal Foods from one another, the old from the young. The old have it most evolved & in the same proportion should stimulate most in the Stomach. This agrees also with the Time required in Digestion & I think this saline Matter must have a considerable Influence in modifying Digestion & we find that animal Matter advancing to a putrefactive State, excites it more quickly.

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Cases where Nutrientia are required 545

than any other. In weak Stomachs of chlorotic or hysterical Women we often find roast Beef easily digested while a Chicken will remain for twenty four Hours in the Stomach. Along with this I think it is probable that the Stomach is endowed at tractability according to the State & Progress of Digestion & that the different Degrees of Ferment gives a peculiar Stimulus & different State as to most People we find that give a greater Sense of Distension & Weight & more thirst than Beef. This is too extensive & difficult to be applied to all different Aliments. The Nutrientia are to be employed as Remedies where there is a Deficiency of Fluids which may happen from —

1st Evacuation from Laxation. 2 Diseases consisting in increased Evacuation. 3 Interrupted Supply when the usual Evacuations continue. 4th Impeded Assimilation commonly attended & increased Evacuation. —

There are some Cases not to be removed by the Nutrientia alone as where the assimilating Powers are much weakened, the various Cases of w^h I cannot point out. It is to be known by want of Appetite for Hunger always appears to be a consequence of finished Digestion. This is our Guide especially if attended by Torsion, Disgust or Nausea. In these Cases giving Aliment is generally lost Labour. It may justly be made a Question whether

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or not we should ever force Aliment to be taken when there is no Appetite or even Aversion. I can easily conceive a Case often mentioned by our good Women where the Stomach is distended with Flatus & when forcing down a little Food as they direct may either expel the Air or cause its Change & Reabsorption & there may also be other transitory Affections that a little Aliment taken down may remove & appetite be produced: What they are I cannot venture to say. A more considerable Case where Aliment is forced is where there has been considerable Inanition & the Cause of it still subsists, here our Labour will be fruitless whether the Cause produces improper Assimilation or not.

All these occasioning Inanition & weakening the chylopoietic Powers have a considerable Effect in both Ways, but the Cases of Inanition subsisting with the Cause attended with increased Impetus, such are the Cases of Fever, Inflammation & Hemorrhage, & also it may happen in the Case of increased Impetus depending on Laxity. In this Case, & usually where Inanition depends on increased Impetus, it is that the Choice of Aliment is necessary. We cannot long delay the throwing in of Aliment & must use that which stimulates least choosing the vegetable & avoiding animal Food.

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Choice & Administration of Aliment 547

Here we necessarily suspect a Cacochymia^u might be conceived in several Cases & I believe rarely ever occurs & only requires a Choice of Aliment w^h I imagine is here the principal or only remedy & that it is this & not abstinence from food that is required.

With Regard to the Administration of Aliment there are but a very few general Rules necessary.

It must be accommodated to the State of the assimilating Powers with respect to our Strength & as they are more or less impregnated with assimilating Ferments & there is no Case of Weakness where the assimilating Powers are not in some Degree weakened & we should first give a small Quantity of Aliment & then increase it & this Rule is more generally established if we attend to the whole System.

The State of the Vessels is soon in some Measure accommodated to the Quantity of Fluids & when there is any Deficiency you cannot restore the proper Quantity all at once. All the former general Rules respect the Choice of the Aliment & are either to be drawn from what I have said above or from a full Detail of the Materia Medica.

[B] This is not accurate with regard to System I have

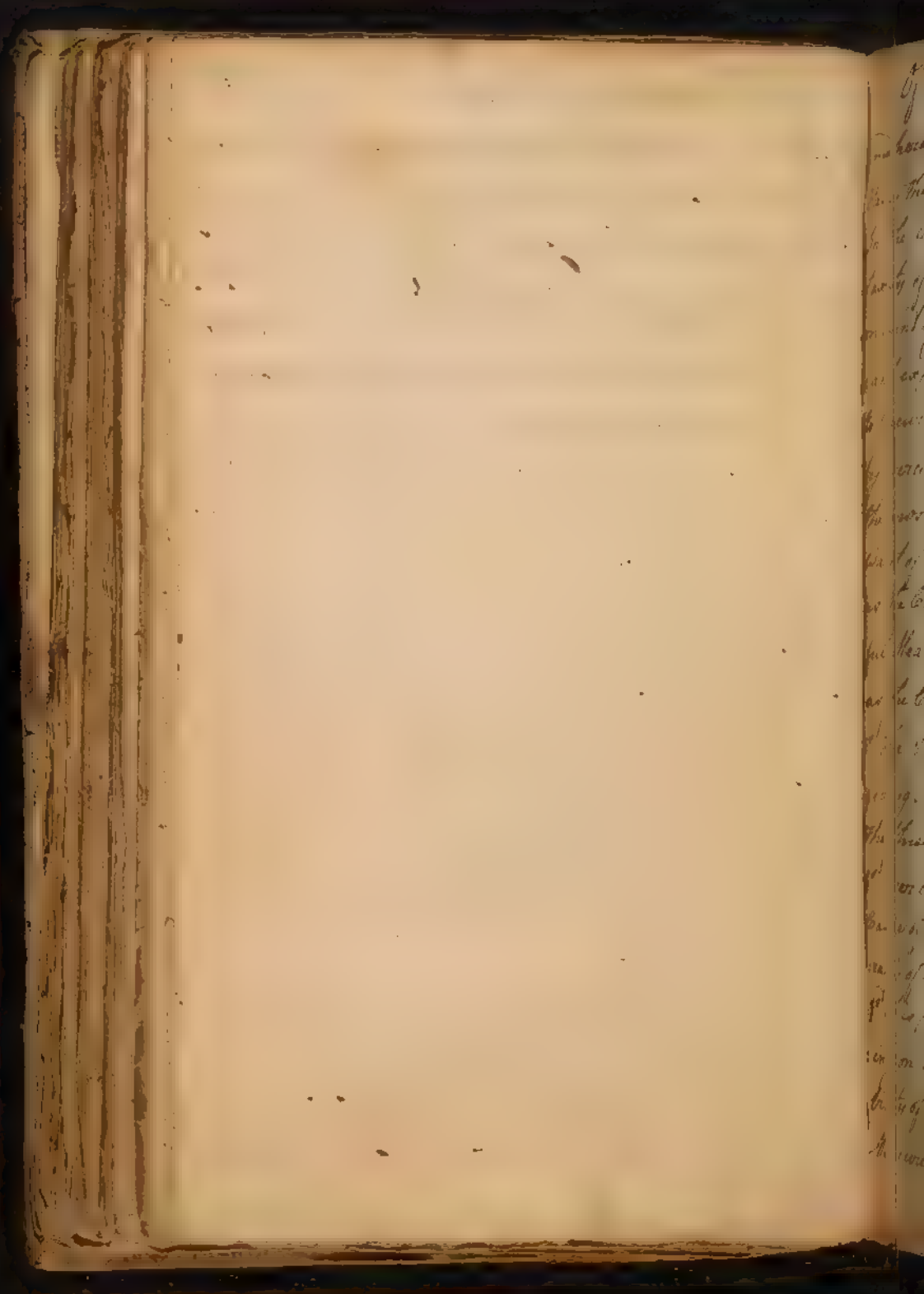
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not given a compleat Set of Indications & this is the only
 chyrurgical one. It is of little consequence & I could not
 treat it without entering on the Doctrine of Ulcers
 &c. This is a very complex Indication & I confind it to its
 Application to the simple Solid, but it is most generally
 applicable to the old & new ulcers. The Remedies for
 this are very various & we cannot speak of them till
 we have considered the Cases to which they are applicable.
 The State of the simple Fibre may depend on the origi-
 nal Fibre giving Laxity.

1st It may arise from the different Proportion of solid &
 fluid: (this might perhaps comprehend the other) &
 arises from various Causes as applied in y^e Nutrim^{nt}
 or from weakness of the cohalant Powers or from viscerous
 humours applied without from Inundation & lastly
 the proper Degree of Solidity being given it may depend
 on Tension or Pressure. As the same occurs in the
 moving Fibre it may be referred to two Heads
 1st Atonia. 2^d Palsy.

1st Atonia arises from a Cause acting on y^e moving fibre itself
 2^d Palsy arises from the moving Fibre being weakened
 from Causes intervening the nervous Influence from
 the Sensorium.

From these bases the various Proborants are indicated



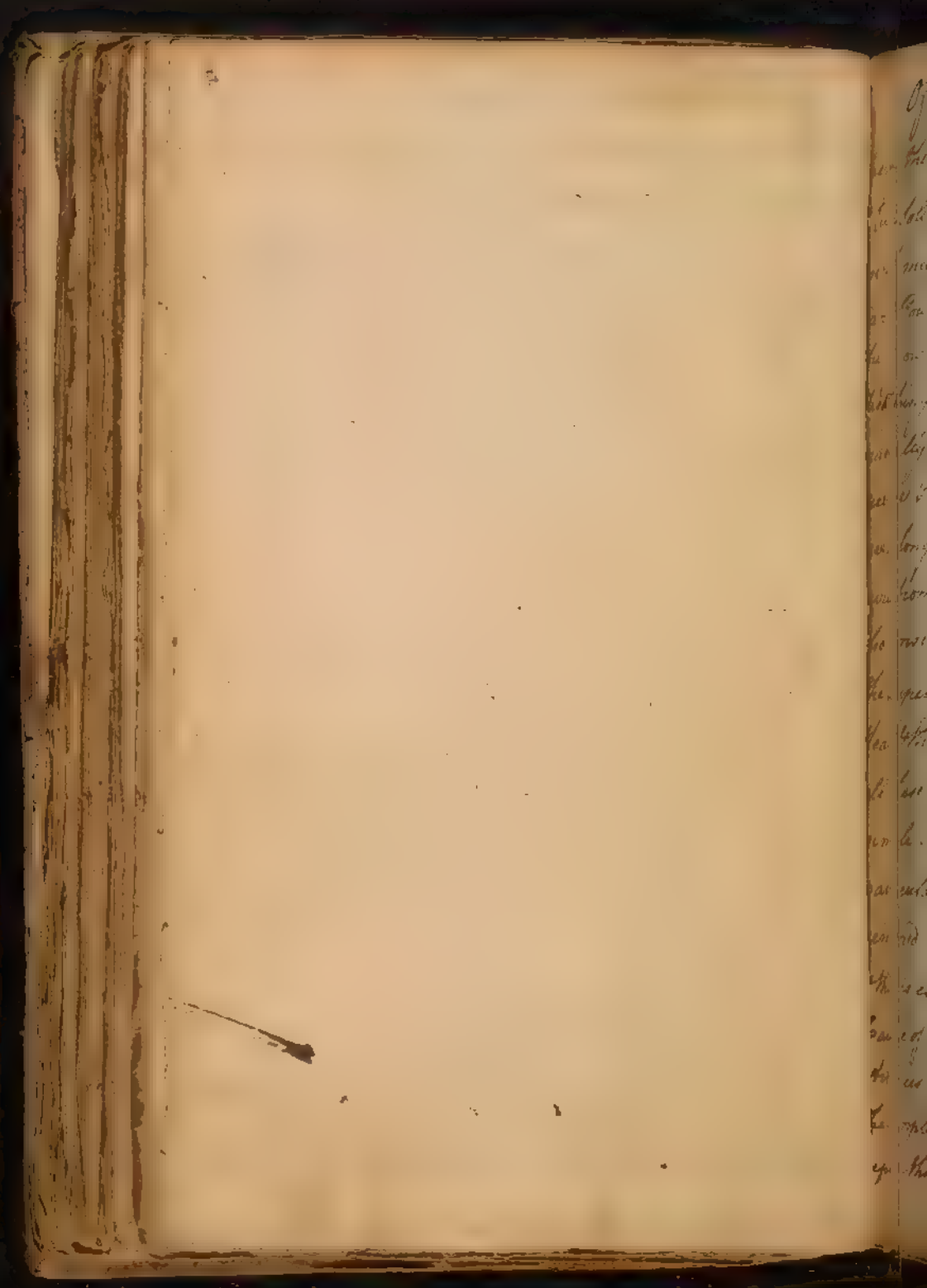
and here I invert the Order of the Causes & say that in Palsy the Roborants must be Stimulants.

In the Case of Attonia we see that it may depend on a Laxity of the simple Fibre & it depends more particularly on Want of Tension & perhaps on some other Causes we can't explain as the Operation of Sedatives & this is to be cured by all Means of restoring Tension partly by Exercise partly by Cold & too great Heat is one of the most frequent Causes. Lastly as depending on Want of Tension it may require the same Remedies as the Case of Palsy. Exercise is one of the most powerful Means & all Medicines that condense the Solids as the Class of Astringents.

1st The Use of Stimulants. 2^d The various Means of giving Tension 3^d Exercise. 4th Cold. 5th Astringents. The three last are what I am to speak of here.

Exercise is also to be considered as a remote Cause of Disease & therefore I shall speak more generally of it here.

It is plain that the Function of our Fibres depending on Flexibility or Elasticity depends on the mobility of the Particles on one another & this is in a great Measure regulated by Exercise & of Consequence it



strengthens the System.

The Solids are formed of Fluids & therefore the Nutri-
ment must be in a fluid form, but there are extra-
ordinary Powers that increase the Density & Strength.
The growth of the Body is always accompanied by
Vitalizing Powers & as it acts on elastic Bodies, it
gradually gives more Firmness & Cohesion & of Conse-
quence Strength. Exercise is the chief condensing Po-
wer, along with Inhalation which it increases & prop-
els more from Motion or the Distension of the Vessels has
the considerable Effects. It is also probable that
the superfluous fluid is exhaled by the Power of
Heat & this is greatly increased by Exercise, so that
all these tend to show how Exercise strengthens the
simple Solid Parts as they use Exercise. This affects
particular Organs, but the general System must be
rendered dense by the closeness of the cellular Texture.
This is especially brought on by Exercise as is the
Cause of the Rigidity & sometimes Ossification of the
Arteries in old Age. While Exercise has these Effects on
the simple Solid it also has considerable Powers
upon the moving Tubes as a Stimulus. I formerly

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said that Repetition of Motion facilitates the Influx of the nervous Power to that Part & by Custom also the Effort becomes greater & it must in time strengthen the Tonic Power over the whole System, & the ready Influx of nervous Power. Exercise also expedites the Circulation & executes it over the whole arterial & pulmonary Systems, & this especially affects the venous Vessels & merely by the force of Impulse ^{Thib. 571} this is increased independant of the Quantity of Fluids & this must promote all the Excretions & Secretions, by which Exercise not only strengthens the Solids but supports & renders the proper State of the Fluids, hence is the chief Means of preserving Health & a principal Remedy in the Cure of Diseases. It is forbid in an increased Impetus of the Blood, unless to a particular Part & that internal w^{ch} may be remedied by Exercise determining to the Surface, but independant of this it may be carried to Excess, produce too great Impetus of the Circulation, Haemorrhage & various morose Loci. But when carried to excess also it may overstretch the Muscular Fibres as that when employ'd to strengthen the System, it must be within these

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Bounds. In obstruction of the Fluids it may be a considerable Remedy, but the Objections to its Use are more remarkable are more remarkable against the desirment Effects of it. It may produce spasmodic Effects, which may make them more obstinate & we know that whatever increases the venous Influx is always followed by Languor & therefore it must be limited on this Acct. Hence its Limitation & the Difference of the several Exercises we employ. The voluntary Motions, bodily Exercise principally produce Languor & bring on increased Impetus by expediting the Motion of the venous Blood. There are other Kinds of Exercise nearly independant of the Action of the Muscles got by the various Kinds of Gestation, as sailing, going in a Machine & Riding. The chief Effect is here by the external Pressure & this affects the Circulation principally, for tho' the Body appears seemingly at Rest, when the Motion is equable, yet when it stops, we find the Determination it has to go forward. This greatly affects our Fluids & on the least Variation of the Motion

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the fluids may be found to be impelled. This occurs more or less in all Gestation & from this I imagine they act so much as desobstments & overcome Obstructions as much by determining to the extreme Capillaries along at these for the most Part some Degree of muscular Motion concurs. The Effort is gentle but constant & can be bore longer than bodily Exercise.

2^d Cold. As acting on the inanimate Matter, condenses it, but this only on the Surface & not considerably; next it condenses the fluids & allows the Solids to contract by this Means & to this I would add its Condensation of the nervous Power & must give the whole solid Parts more density. next its Effects are still more considerable to our System as sentient to which it acts as a constant Stimulus & from this it produces its full Effects in the Contraction of muscular Fibres. The other Effects of Cold are secondary, its Effects on the Surface are propagated along contiguous Membranes & the Tension of the whole is increased & also its Stimulus is continued over a great Part of the System particularly along the vast sanguiferous System, whose Action we find it often excites & from this & from its increasing the Tone it promotes Respiration & all the excretions & also gives Activity. There seems to be

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a nervous Communication propagated whether by Tension or Stimulus by which the Application of it to a particular Part to a finger may spread its Effects over the whole System & produce a general Irritation. This seems to be connected merely with a Sense of Cold as often the Body is of the usual Heat when tried by the Thermometer. Cold is a Stimulus to excite the Energy of the Sensorium & thereby the whole System. The Actions of the System I have said are more directed by final Causes than we can explain & Cold by this occasions a Reaction of the Sensorium which operates its Effects & this not only gives momentary Tension but invigorates the System. There is however something more in the Effects of Cold than I can explain. The Force Power depends on the Density of the solid Matter of our Nerves & especially of the Ether. If the Elasticity is increased with greater Rarity, it does not answer the purpose but gives Debility & there must be a certain Balance of Elasticity & Density from Cold but it is therefore the most proper Stimulus to our System & this should be much above at times that State of Air we find agreeable & greater than the Cold of our Bodies always. Heat deviates Vigour & lessens the generating Power as is seen in warm Climates. The Use of the Application of Cold is easily understood from the foregoing Principles of its acting

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as a Sedative & hence destroying Life if in too great Degree of its Producing Constitution hurtful if not followed by Heat, as it is always unsafe if it does not stimulate. Heat is much greater than the Degree of our System, it must be transitory to be safe. All this applies easily to cold Bathing not so to cold Air. In Haemorrhage we know how necessary it is to keep the Body cool, as Heat induces a Delicacy but the Degree of Cold is not ascertained tho they are now trying it in the small Pox.

3. Astringents are a Set of Medicines whose Uses are all ascertained but I shall mention some Facts with regard to them & some Conjectures otherwise.

I suspect that Astringents are such Matters as coagulate a Part of our Fluids & act on the Solids as of the same Nature. They may be reduced to three general Headings 1st Alcohol 2 Acids 3 Styptics.

The coagulating Power of Alcohol is well known & its hardening the Solids. It is applied externally to harden the Surface & strengthen Cicatrix. I know of no other Use to the simple Solids. It acts also to the moving Solids as a Stimulus & Sedative.

2 Acids coagulate Fluids & harden Solids & have both a Stimulant & astringent Quality. Where they act as astringents there is probably a Diminution of Activity.

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of the nervous Power, & then they act as Sedatives, but in a certain State they dissolve animal Substances & stimulate more than constringe & must be more delicate to excite Astringency. Both alcohol & acids have been reckoned powerful Astringents from their stopping Haemorrhages but this is found rather to be from their coagulating the Blood & forming Thrombi in the petulant. Now this is the Effects rather than constricting the Solids.

Styptics are of various Natures more than we can speak of. Acids combined with a certain Earth that dont neutralise it entirely forms a Styptic. Of this Kind is Alum & it has led to a false Notion that all Earths combined wth Acids form Styptics, but I know of none else of that Class & on the contrary they dissolve the Blood & if ever they have appeared astringent it is from their refrigerant Powers if they are exactly saturated.

Most metallic Salts have similar Effects to Alum they unite wth Acid & give it a Degree of Concentration. As thus partially saturated the acids coagulate animal Fluids & may seem astringent & it is true that some of them form powerful Stimuli. The Astringency alone appears in Acids joined with Lead & Iron.

Stimulus alone appears from Silver Antimony & Mercury &c. that Operation from Gold, Copper & Zinc

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The Effects of *Tin & Arsenic* are not sufficiently understood. The astringency indeed appears in *Tin* in some Measured but is combined with the strong Stimulus of Arsenic. Acid appears to enter the Composition of Styptics as styptics have been tried the vegetable Acids their Acids coagulated but by what Means is uncertain. but we know that this acid concentrated & fixed in solid Matter. Astringent Vegetables are sensibly styptic the without perceptible Acidity but when we consider how easily the acids pass into the acid and we are led to think that here an Acid is combined with some Earth &c. & may be enquired whether or not Acid is not always the cause of stypticity. The vegetable astringents are known by their absorbing acid from Metals. They bring *Tin* to a Black Calx & are hence the Foundation of *Tin*. Thus far Acids operate on our simple Solids but not perhaps very considerably for there are Doubts if something else does not concur with the Operation of Styptics, in giving Density as in Tanning of Leather great Care is taken to retain the cellular Texture but away the Sol. If we could not determine their Effects in any other way but the simple Solids we should find them of little Use but they operate also on the combined

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Parts. A small Quantity of Alum or Saccharum La:
turni applied to the Tongue will produce sensible
Constriction over all the Fauces, whereas Decoctions or
impregnated with them or astringent Vapours deliquesce
I imagine in Part from their fluid Form. in Part from
the Surface being lined with Cuticle & only act con-
siderably on the tender Parts as the Eyes, Mouth &c.
The Theory of their Operation internally is uncer-
tain as we cannot suppose that the small Quantity
carried to the Vessels can have much Effect in Hamor-
rhages & any Effect they have must be from their Topi-
cal Constriction propagated to other Parts. The Sto-
mach is the most proper Organ for this as so much
connected with the System & here the vegetable
Astringents have small Effects compared with
the Opil. On this footing the metallies have been
called Narcotic. they are not Hypnotics like most
Sedatives but have an Operation sui generis which
remains to be explained.

Astringents are strengtheners as changing the Ten-
sion but in a higher Degree sedatives & pernicious.
Astringents often give Constriction that prevents re-
currence of Atonia that would occasion Spasms &
other

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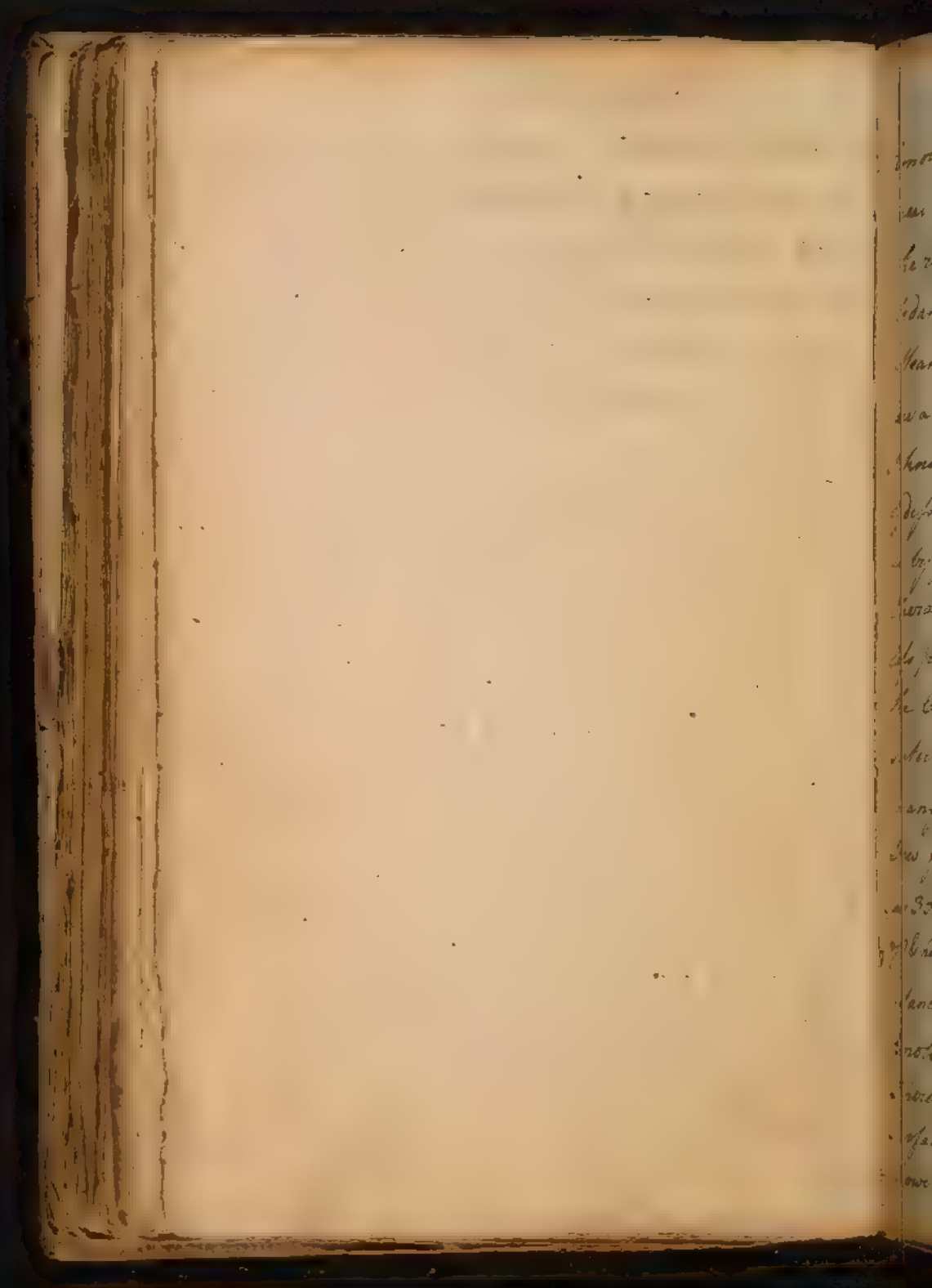
Convulsion. The Operation of Bark thought generally specific certainly produces Effects in this Way but there are other Powers joined I think evident. It is surely adstringent & other substances show the same Effects, but this is not all, for those Medicines which have the Power of Bitters as well as astringents have not its Effects & yet the Ague was cured before it was known.

One Difficulty remains with regard to Bitters, they certainly strengthen but do they act as astringents or not. If they act as Astringents it greatly embarrasses our Theory & we have Difficulty of supposing that they act as Stimulants.

They affect the nervous system produce a strong Contraction where they are applied & invigorate the Circulation hence they act as Astringents & also as Stimulants as well as astringents. This appears to be according to their Degree, but there is considerable Difficulty both in Theory & Practice. If Sacc. Sat. is given to stop Hemorrhage internally the only way we can suppose it to act is by propagating a Constriction from y^e Stomach to that Place but we should think that it would affect the whole Vessels equally & produce great Change in the Determination this can not be obviated by any situation

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Powder but probably it may effect chiefly the Part w^{ch} has a great Degree of Excitement. If Hemorrhages are merely passive depending on Relaxation we see how they may be of Use but Evacuations are most commonly from increased Impetus & then we see they may be hurtfull but may they be applied externally. If the Evacuation is violent we must hazard something but it certainly endangers increasing the Disease over the System & was in the Part & it is always dangerous to interrupt the natural Determination, but they have sometimes been found of Service & I think this may be explained. There is I think no Case of increased Impetus that does not act by Exacerbations & Remissions as a Bleeding from the Nose is often a Symptom in the Hot Fit of an Ague & a regular Hemoptoe is sometimes cured by the Bark on the same footing as an Intermittent is so in excessive Menstruations even uterine Hemorrhagy & Fluor albus, Exacerbation & Remission appear & I think they may be of Service & only have failed from our employing too small Doses.



Emollients may seem the converse of the other & appear to apply to the simple Solid & moving Fibres, but the relaxing the Tonic Power of moving Fibres to the Sedantia & antispasmodica & here only consider the Means of relaxing rigid simple Solids. The Means are always either 1st Water. 2^d Mucilage & 3^d Oil.

I know not if there may not be a Head of Means of dissolving animal Solids, but it is too subtle Water is by far the most powerful & if we understand the Operation of one we understand the other too, which are less powerful but more durable. Water enters into the Composition of animal Solids & according as it enters they are more or less rigid as appears from many Experiments especially Dr Bryan Robinson's. Few fluids relax more than cold Water by him it is as 35 & the other as 38. & Warm Water relaxes as 78 & did so much unless Ac. Vitr. which destroys the Substance, hence Water is the greatest if not the sole Emollient & all act as impregnated with it.

I here consider its Effects as applied to the whole Surface in warm Bathing. It consists of two relaxing Powers in its Operations Moisture & Heat. The last

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not solely as assisting every Menstruum. It is
just suited as dissolving animal Matter, to clean
the Surface from Mucus & sebaceous Dirt as very apt
to concrete with Dust & obstruct the Perspiration & also
are apt to excite many cutaneous Eruptions & hence
they obstruct & cure many Diseases.

Water assisted by Heat not only dissolves & washes off such
Matter but insinuates itself into the Cuticle & relaxes it.
While it went no further from affecting the Cuticle & not
Parts, it might affect the whole System from the Connec-
tion I have mentioned. In this Way the Effects of
its Relaxation may be very great but they are mean-
while a Number of Nerves being expanded below it,
and not only act on them as Organs of Sense but as com-
municating with the rest of the System & may be con-
sidered as wrapping the other & relaxing the whole
System. Probably another Consideration is to be
included as far as this Relaxation of the others is pro-
portional it gives a pleasurable Sensation. & we have
considerable Effects by withdrawing the nervous force
from the Sensorium while it may be restrained from
Anxiety & Laceration & then the warm bathing may

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induced the unexcited State necessary to produce Sleep.
 The Effects however are not confined to the vascular System &
 nervous System but affects also the sanguiferous
 system. It is applied to the extremities of the Vessels
 induces them & induces a considerable Change of Determin-
 nation & the Relaxation is propagated a considerable
 Way. It is disputed how far it penetrates. I think from
 the Relaxation of the Cutis it may affect all the sub-
 jacent Parts even the Ligaments & Bones. It
 may also be applied to the Abdomen affect the In-
 testines & Uterus & remove spasmodic Affections
 from them.

The Application of Heat I have also said relaxes the
 Fluids considerably more than it relaxes the Solids &
 hence it may increase the Tension & Torquities & the
 Heat of warm Bathing is found hurried in the Cases
 increased Torquities. I must say that the stimulatory
 Powers are very considerable but are safe as accom-
 panied by a relaxing Power but thus also may take
 Place sooner than the relaxant but if so tempered as to
 come on nearly at the same Time & are moderate they
 can have no bad Effect & besides this the stimulations

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Means of exciting Motion

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Powers are more transitory than the relaxant. These Principles would be illustrated by an Application to particular Diseases but we have not time for that. We have given also the Principles in its mode of Application. I think a little below the human Heat is the proper Degree to obtain the relaxing Powers & have no bad Effects from its Stimulus but we have no Experiments to determine its Effects higher & applied for long time. 2 Hours as in France speaks of. I am uncertain how far it may produce relaxing Powers when much continued as we find in warm climates it is very constantly used & was especially so by the Ancients without any bad Effects & its Use in promoting the Periodic secretions is very obvious.

Now propose to consider the Indication of exciting the Motions of the System which is done by various Means which might almost include all Remedies. Formerly defined Stimuli to be either direct or that immediately affected the moving Force, or indirect as producing a Sensation & by that Means a Section of the Nervous

[Faint handwritten notes, possibly bleed-through from the reverse side.]

Both these may be found to take Place in the sanguiferous System, but I always have declined entering on the indirect tho I find it as a frequent Cause of Fever but I know not how to excite Fever at the longer Time & in due Degree or when to do it if I could I shall only consider the direct in this I have before pointed out the several Powers that may be thus employed. Every Impression producing Sensation These are numerous & of great Use with regard to the Conduct of Health & there is an Indication afterwards to regulate when they are to be removed, but they are seldom given as Remedies. Most Impressions not accompanied with Reflex Sensation are seldom given & rarely taken away in Disease. The others are rarely employed nor are more of their Operation as they act so variously on different People & are very various as the Degrees to which they excite from the former Habit. They are frequently Remedies by Accident but are also Potentia nocentes. I know sometimes cures a Palsy, but also often proves fatal. A Physician by Experience of a Patient may perhaps apply them, but for this no Rules can be given,

also pass over Motions in the Lys in that prove indi-
rect Stimuli as included under Exercise or some of them
that come under Sedatives. Then come to the Use of the
agent whether as stimulations the Stomach or the Lys
in general & then I have spoke of already.

2 Tonics

3 Exercise as tonic & Stimulant

4 Cold as a Tonic & Stimulant.

5 Heat as a Stimulant.

There remains Electricity, Mechanical Stimuli
& the chymical Acids of which I am to speak.

Electricity this is a very subtle uncertain Enquirer
I shall leave it on the footing of Experience. It seems
to act most purely on the nervous Power while the others
act principally on the sanguiferous. This Power of ex-
citing Motion on the nervous Power makes it proper in
a Torpor of it but at the same Time it may prove destruc-
tive of life & we know not the proper Limits & I think
I have seen both & therefore it is always to be employed with
Caution in the lower Degrees but is to expect most of
its Effects from a Continuance & at the same Time its
Effects are not so entering near but it may affect the

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sanguiferous system & the Danger I think often arises from exciting it where there is Congestion in the Brain.

2. Uterine Mechanical Stimuli I include Exercise & all Cases of Impulse. The last is most commonly to be spoke of as affecting reflex Sensation & the only Case I have to speak of is what is called Friction. Thus we can understand in no way but from the alternate Motion producing a Stimulus to the sanguiferous system & increasing the Determination to the Surface & increasing Perspiration &c. I shall not say where this may be of Service but is particularly so joined with warm Bathing as practised in Atria. I seldom see its good Effects here as we apply it improperly dry where it must be very gentle or very long continued.

3. Chemical Stimuli or strictly Stimulants. There's great Variety of Matter is employed & we can scarce see the Connection of them & I here entirely trust to Experience as I do not see any Property in any of them more than others a priori as Remedies. Physicians have been satisfied by finding the Action of mechanical Acrid but I could easily show that this cannot apply to saline Matters from a Notion of these Figures taken entirely from their Figures & nothing can be more absurd than that Solution does not depend on Figure & form of Absorption.

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Of the sensitive Plants, it is evident that there is an action of certain ethereal Matter very different from any thing spoke of in the Corpuscularian Philosophy. I have hinted at something similar to ordinary solution of a Union of various Others & hinted at this in the Case of Smell & Taste & also that there may be some Cases as we see elsewhere of one Ether repelling another. Tho we can

At every saline Matter soluble in Water evidently is associated with respect to us especially the acid & alkali the simple Bodies & they corrode the Parts & may be supposed to destroy the Other united with the solid Parts but the neutrals dont corrode & they must have some different Operation. Some of them seem to act as Sedatives or Refrigerants, some of them more remarkably so than others. Common salt appears the most pure Stimulus while others of them seem to require a Modification of the Nerves acting on the Stomach.

2^d A great Number of Salts are Stimulants all those that are acid to the Taste or disagreeable most of

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the essential Oil & to these may be joined the Chemical Productions of the empyreumatic & the vital Oil & here the same Doubts lie that do many others. Some will say Oil is naturally Cold & the acrimony may be supposed depending on a saline Matter tho' it has not been discovered.

Of Resinous Matters they lead us to think that the acrimony may always be saline as they in the form of Balsam appear composed of Oil & a saline Matter. In the Class of the Tetradynamia the same appears as they seem to contain a volatile Alcali.

In various animal & mineral & some vegetable substances peculiar. They all seem to contain saline substances especially the two first tho' they are not clearly proved, & as many of these are entirely poisonous it would give us a Difficulty of resolving Sedatives to a saline Saliva.

A Doubt remains with regard to Bitters very peculiar. They all contain an Oil but whether their Operation depends on this or their saline Matter I am uncertain & especially as they act both as Stimulants & Sedatives.

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The Operation of Stimuli is very extensive both on the Part & the Sensorium & on the whole sanguiferous system. They operate especially on the Part they are applied to & by that on the sanguiferous system & I think it is probable that they act on the Sensorium by the Pain they produce as in the Stomach but some of their Sedative & antispasmodic Effects shew their common Action on the Sensorium. - to their Effects are so many we are much limited in their Use as we are not certain as to the Degree of their Stimulus & their sedative power. The Volatile Stimuli are mostly topical in their Effects & are momentary, if ever they are general they must be in large Quantity & hence frequently repeated. The general Effect of most Stimuli depends on the Topical, & acts on the nervous system but most on the sanguiferous. They differ as their Effects are transitory or permanent. The more they act topically, they are more permanent & less when general, & hence the general may be most frequently repeated. The Topical Effects of Stimulants are Evacuations, as they operate on Excretories & I think if they are applied to excretories

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they may all have this Effect, in place of the Motion
 of specific Stimuli adapted to particular Organs only &
 I think all. Appearance of specific Stimuli may be
 explained in another Way. The chief Use of
 Stimulants are as Evacuants & we are at a loss for a
 general Stimulus in Palsy that does not destroy
 us by its topical Effects. In the Case of Fever about
 the sanguiferous System is greatly excited before it is
 removed we should think of the Use of Stimuli, but
 this has long been tried & commonly pernicious
 Effects. If ~~ever~~ they are here admissible we are
 confined to the more general & transitory Stimuli
 accompanied at the same Time by an antispasmodic
 Power.

Sedantia or means of Diminishing the force of
 Motion in the System. There are many more Occa-
 sions for this Head than that of Stimulants ten for
 one. The Powers here are very great but I think
 they may easily be reduced to three Heads.

1st The withdrawing the ordinary Stimuli from the System.

A Notion has prevailed that our Bodies act as an Automaton: I believe it is true in some respects, but as our immaterial Part is connected with a material Mechanism it would fall into total Stagnation were not Stimuli applied. We know that it would never have appeared in the form of a living System had it not been for the Power of Heat & would we with- draw all Impressions & of consequence stop all Communication it would soon become a Nonentity as happened to the Dutch Physician who took a Fancy that Sleep was the most favourable State for his System.

2^d Various Means of weakening the moving Power of the System whether they require any Impressions or not.

3^d Various Means of diminishing the mobility of the nervous Power.

The 1st is very various & considerable as by 1st The Aliment being withdrawn so considerable a Stimulus from their Bulk & Variety daily required. 2nd With- drawing all external Impression which are to be

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considered as Stimuli & some of them are almost necessary to the system as light & noise. These act as Impressions but especially for their producing intellectual Operations & the avoiding all intellectual Operation is a 3^d Head. All these causing Anxiety & such as are personally interesting to avoiding Excess of Watching which naturally alternates with Sleep. This cannot be without the Impressions I have mentioned. Assuming all reflex Sensations which require the Existence of intellectual Operations some of these are direct Stimuli, others sedative as Fear, Grief &c but act as indirect Stimuli. Here I would add C The gratifying of solicitous Appetites of difficult application applied to particular and the Gratification of Lust took off the Necessity of the system. It wd be placed here but in different Ages it may arise from other causes & is difficultly made an article of Practice & the same of the gratification of Hunger & of this I shew in here it must be that the least Stimulus of the Gratification of Lust we can more easily allege to be a means of diminishing the Motion of Digestion we can more easily promise on their not being De-

[illegible]

Stimulant, & they seldom are desired so by the sick here.
 Another Means is avoiding muscular Motion & affect
 sensation & also stimulates the sanguiferous system as
 Respiration & hence speaking & we are next to indulge
 Sleep & this we do by a means that might have been spoke
 of under the Head of intellectual Functions by giving
 Impressions of no great force or particular Tendency as
 the aolian Harp which can lead to no train of Thought &
 Lastly avoiding that so considerable a Stimulus if
 above 62° for then immediately it is felt as a Stimulus
 & Cool Air is then a Means but how low this may come
 we know not only to ballance the generating Power.
 This gives the ant-phlogistic Regimen so much talked of.
 The Means of removing Tension which I have said
 is so considerable as increasing the force of Motion.
 This is done by Evacuations not induced by any Stimu-
 lus & one we are sure of is the case of Blood-letting
 which I think acts chiefly as a Relaxer to be considered in
 another Place. Warm Bathing comes in under this
 Head in the Degree so as to relax the skin & give an in-
 agreeable Sensation & some other Congruous conditions

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and leading to no Gain of Thought. And that is all
 perhaps to warm Bathing is warm Drink internally
 but they act but little in that Way they remove Thirst,
 increase Appetite & Stimuli from Acids thrown in or
 generated there or in the alimentary Canal altogether.
 They may when taken up give Increase of Tension but
 thus relax & from Flexibility increase the Secretions
 much & liberates this & makes them an Article of the
 antiphlogistic Regimen not spoke of before.

3^d Those that act on the mobility of the nervous
 Power, they are very numerous but I refer them
 to 3 Refrigerant, Astringent & Tonic. These are
 the Medicines more strictly called Sedatives. It is very
 difficult to find a common Nature in them either
 similarity in Substance nor Effects.

1st The only Substances to be spoke of as Refrige-
 rants are Acids & Neutral Salts at least of certain
 Kind as I think some of them are rather universally
 stimulant. The others & Acids are found often in
 increased Tension in Fever, Inflammation & Pain
 & perhaps some others. This we have as a part

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and I imagine it is by a Sedative or Refrigerant Power
 as no other Operation seems to account for these Effects.
 In Acids the Effect might be ascribed to an astringent
 Power but not in Neutrals & upon the similarity of
 their Effects they are probably of nearly the same Na-
 ture. This Effect has been ascribed to an antiseptic
 Power or a Resistance of Fermentation particularly
 as Antiseptics. is such they might be supposed to
 operate in the Stomach but from the Quantity they
 can be thrown in the Bulk of Matter they are added
 to I think they can have but small Effect in the Sto-
 mach & afterwards in their great Diffusion they must
 have very small Effect & if they are sedative we must
 seek for another Cause. They are also spoken of as
 attenuants but the Quantity is too small & Neutrals
 at any Rate of Acids this Effect could not occur. Of all
 the Acids offered then since the Quality is the best the
 we have besides some Proofs of an actually sedative
 Power as we have the Effects facilitated by taking down
 Cold Water into the Stomach. They both produce a cold
 in the Stomach & then a Sweat & we may suppose that
 cold produces a Reaction of the System & perhaps renders

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is the same tho' Don't say that it is by their producing actual Cold as they do it when dissolved.

2^d Another Proof of their sedative Power is that when used as Purgatives they produce Flatulency & Abdominal Pain in Proportion to their Evacuation.

3^d Tho' they stimulate we never find it of any Effect nor propagated any Distance which makes it be supposed to be counteracted by a sedative Power.

Dr Alexander finds that a Dose of Nitric diminishes the Frequency of the Pulse, but it immediately returns. The first points out its refrigerant Power but its transitory State does not explain its Effects in Fever, the same of cold Water.

astriogerets. It is evident that if the Effect of it is to constrict the Part, it must compress & condense.

the Other, it must take off Mobility & prevent the Effects of Motion & from this we can explain the Operation of the Bock but it goes further. I used to

explain the Power of Lead inducing Pain from this.

but I now do not as it does it not only in the form of Lead Sat. but in the form of Vapor & even through the

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does this. I think the sedative Power of several Metals appears singular & can scarcely be referred to acridity. Toporifics are the most considerable Head. Sedatives I cannot say to how many Heads they should be divided but I confine myself to Opinion. It is known to diminish Sensibility & Irritability in the Part & in the whole System & induces Sleep. Hence we say it diminishes the mobility or excited State of the nervous Power how I shall not attempt to explain only say that it acts immediately on the nervous Power & not on the Blood.

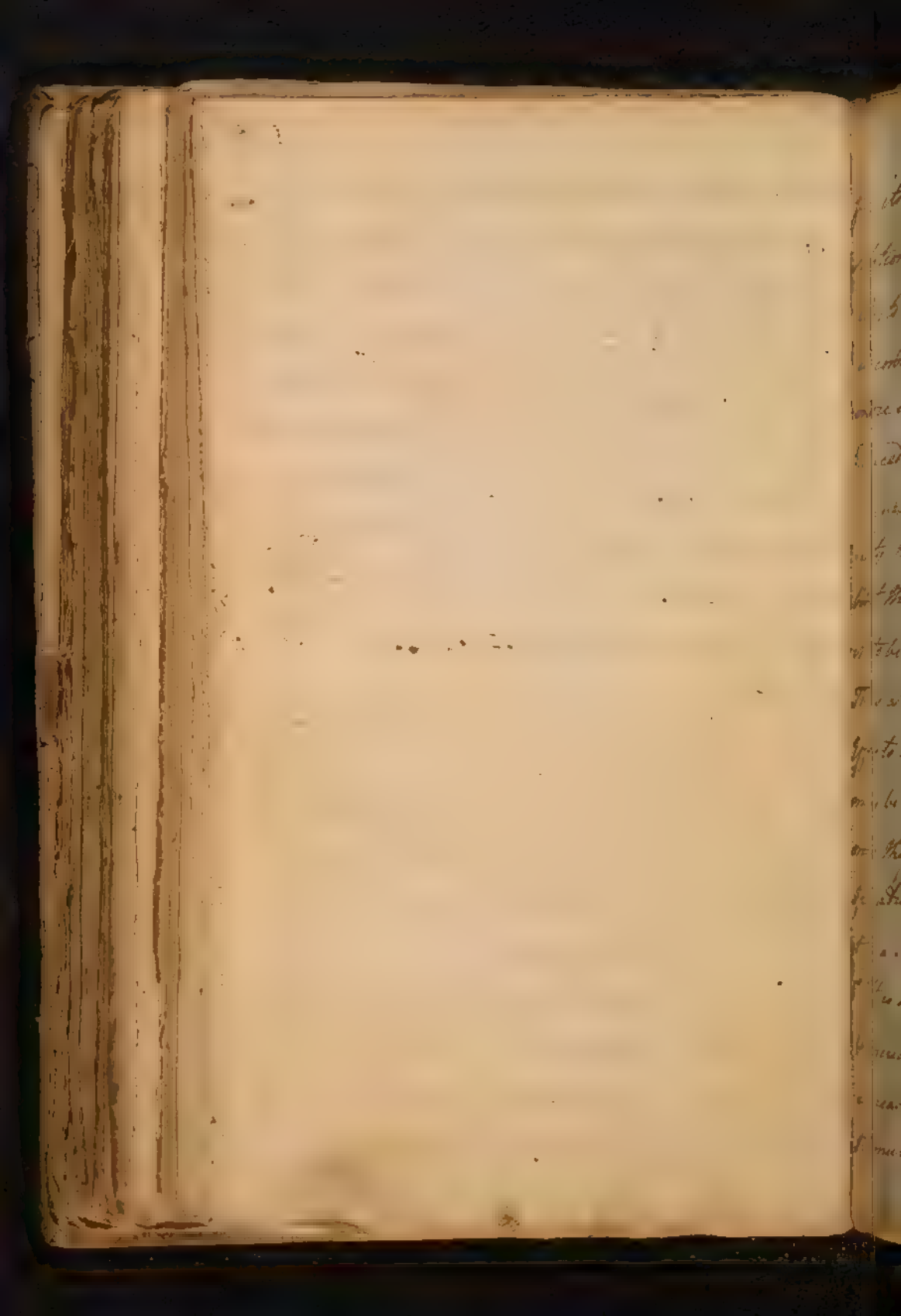
This I conclude first from the smallness of Quantity which cannot be supposed a Ferment.

2^d From the short Time required for its Operation

3^d It operates on Parts entirely removed from all Communication with the sanguiferous System as in The Heart &c. as a Frog cut out of the Body.

It is particularly suited to allay Pain from its diminutive Sensibility & Irritability being diminished by it makes it fit for allaying Motions & increased Secretions.

It is however a Stimulus also from this I would account



in its producing Delirium & the spasmodic irregular
 Motions in large Doses. To account for these two different
 Parts in its Composition have been supposed but this
 is contrary to all facts in Chemistry & I think it is
 more easily explained from a Reaction being pro-
 duced in the system. Its stimulating Effects are
 overdone & it leaves the system in a State of Deb-
 ility the its Operations are in some Degree transitory
 but there is a State of Atonia comes on & Disposes
 it to be affected by Stimuli & to spasmodic Contractions.
 It is a Remedy in many Diseases but as many of its
 Effects are opposite it is uncertain & either of them
 may be carried too far & as the Effects are followed by bad
 ones they are all embarrassed wth Difficulties in its
 Operation. I shall endeavour to obviate these consider-
 ing it as a Sedative.

It is as a Sedative indicated in increased Sensation &
 increased Action but we must consider the above the
 increased excitement & this is always to be referred to
 the Stimulus & is often to be cured by removing the Stimulus.

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than diminishing the Effects of them. Quum must
 therefore be according to the State of the Stimulus pre-
 sent & to its local Effects. Quum is forced in the
 case of a permanent Stimulus in the Body especially
 where the sanguiferous system is excited & there is a
 Determination to the Brain. Then it is not only likely
 to be ineffectual, but is apt to increase the Power of
 the Stimulus. This of Quum is not being admissible
 in Fever is one of the most general Rules in its
 Application in Cases of Inflammatory Diathesis, &
 particularly where there is topical Inflammation
 & it is also improper in the excited State of the sangue-
 ferous system frequent in Hemorrhage, but is this
 always to be observed, it may sometimes quiet Pain in
 Inflammation & the Effects of the Motion in Hemorrhage
 but in fact we don't find it useful or allowable. Its
 Effects are always more or less transitory & after its
 Operation is over the Excitation of Inflammation
 Hemorrhage remains & are apt to return with
 more Violence w^h I think is to be ascribed to its

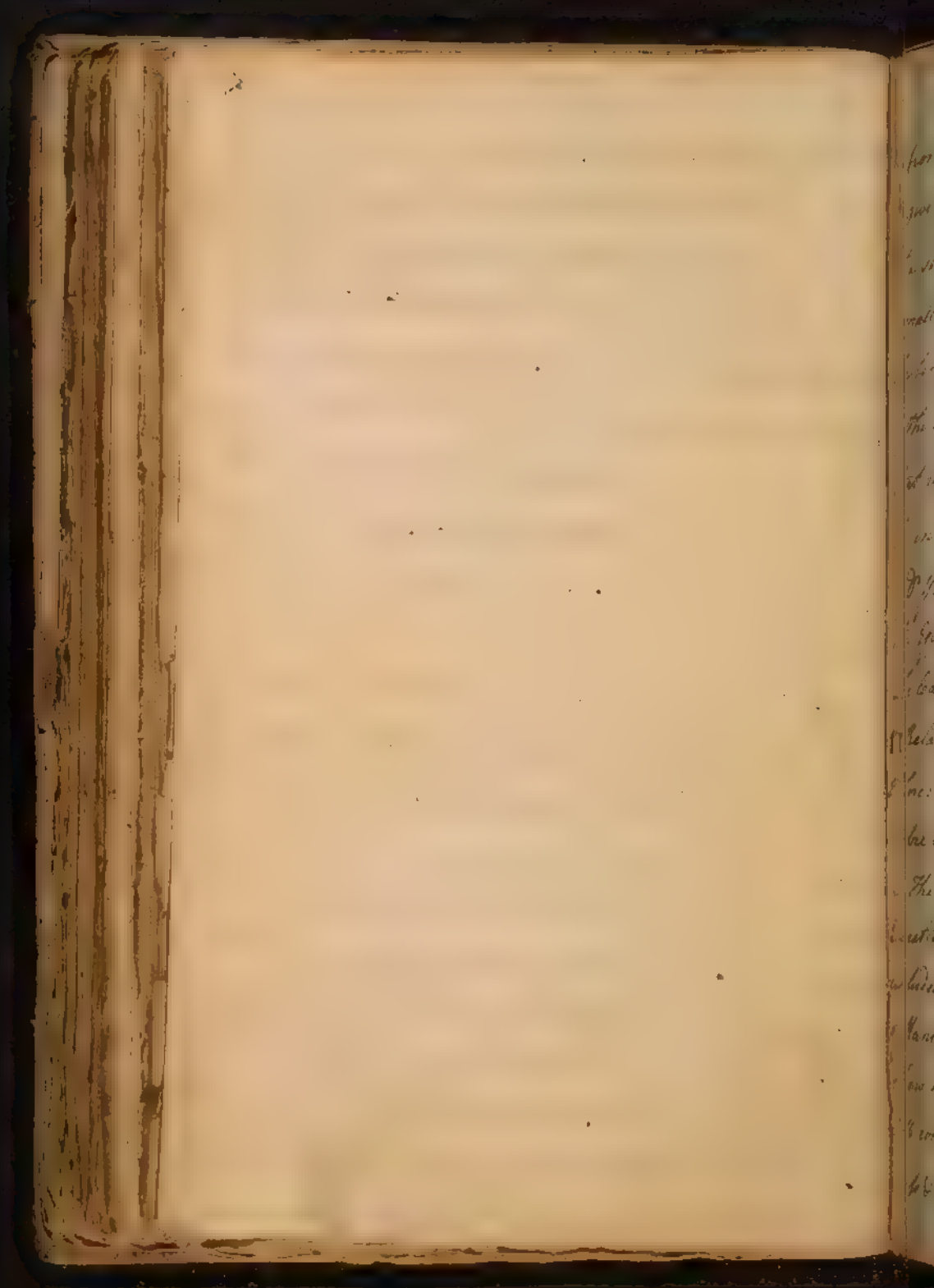
giving a greater Irritability to the System & allow
 the former Stimuli to act more powerfully. In this
 Pathologists suppose always that its relative Power
 relaxes the Blood Vessels & allows the Expansion
 of the Blood & may perhaps occur & will add to
 the former Effects. There are however Cases of
 Tonic Inflammation in which there is of service
 but this is the basis of truly Tonic Inflammation
 unattended by general Fever. We are sure of some
 such Cases. In Rheumatism where there is general
 Fever I only find it gives a momentary Relief &
 aggravates the Disease. But when there is no Fever &
 the Pain is purely Tonic & permanent in the Part
 then I think Gium is of the greatest Service as is
 also the Case in the Costick without Fever. I think
 it is of service in many Hemorrhages particularly
 of the uterine kind & is often from the State
 of the Part without any general Fever
 I will go further & say that Gium is admissible when
 there is a Tonic Stimulus as Calculus in the Bladder

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Belany Ducts. They cause often general Fever & always Inflammation. Blood letting is often required but I always find Opium safe & useful as taking off the Spasm of the Duct & allowing the Passage of the Stone. This is an Exception to a good general Rule given by Dr. Young.

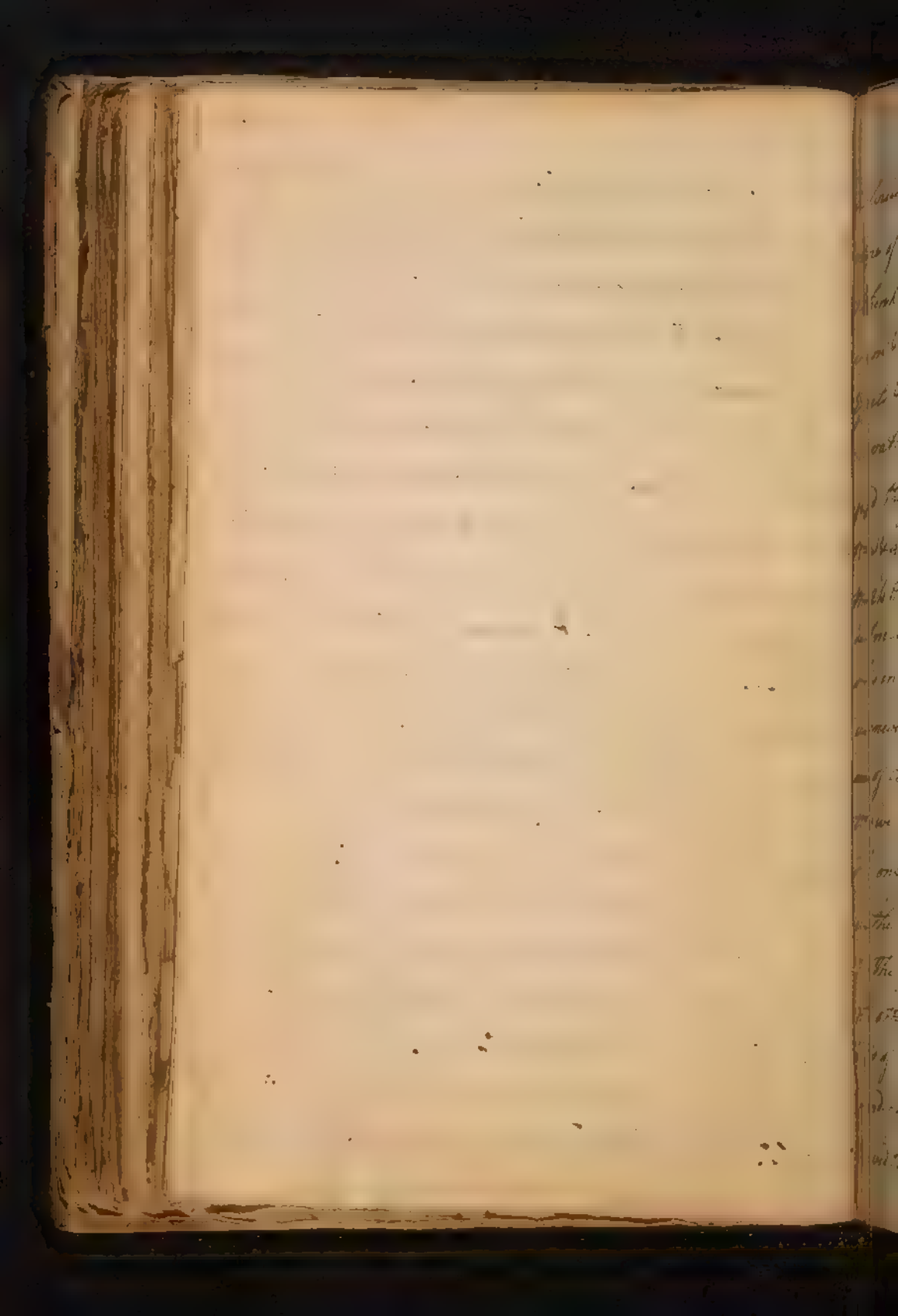
It is again a very general Rule that Opium may be employed where the sanguiferous system is not excited but this is too general & I shall consider it under 2 Heads.

In Pain or increased Sensation Opium gives Relief, but it is only temporary unless the Cause be removed but the Pain may exist after the Cause is gone or may be cured by Opium as is the case of Spasm. Again in the case when there is an Effort by Nature it may be of Service as in Calculus The Duct will operate in expelling it during the Digestion of Pain. It is also proper where there is no Danger of an increased Quantity of the Fluids or a Rarefaction & this restrains it even in the case of Hemorrhagy. If the Pain is violent



As from a permanent Cause we think we are obliged
to give it to give some Relief but it must be when
the sedative Powers are considerable & the Stimulus
small. as is the Case in Cancer. I don't think that
the temporary Relief compensates the Aggravation
of the Pains afterwards. It has noxious Effects also
that resists it as it enervates, weakens & disorders
the intellectual Functions. To this an Observation
of Young's is to be applied that in Cancers it had
the Effect of doing this & increasing the Pains at last.
The Cases in which Opium is indicated are general.
Relating to the Functions of the Sensorium itself—
Increased Motion from the Condition of the moving
Fulcrum itself in the Organs of Motion.

The same in the moving Fulcrum employed in the
Secretions. As to the first I need not say that it is
included in Phrenitis & ordinary Delirium but I speak
of Mania. Where some speak of it is Right, pernicious &
Others as the only effectual Medicine we can give. I
will compromise this & say that whenever there is full
force & frequency of Pulse at the Appearance of the



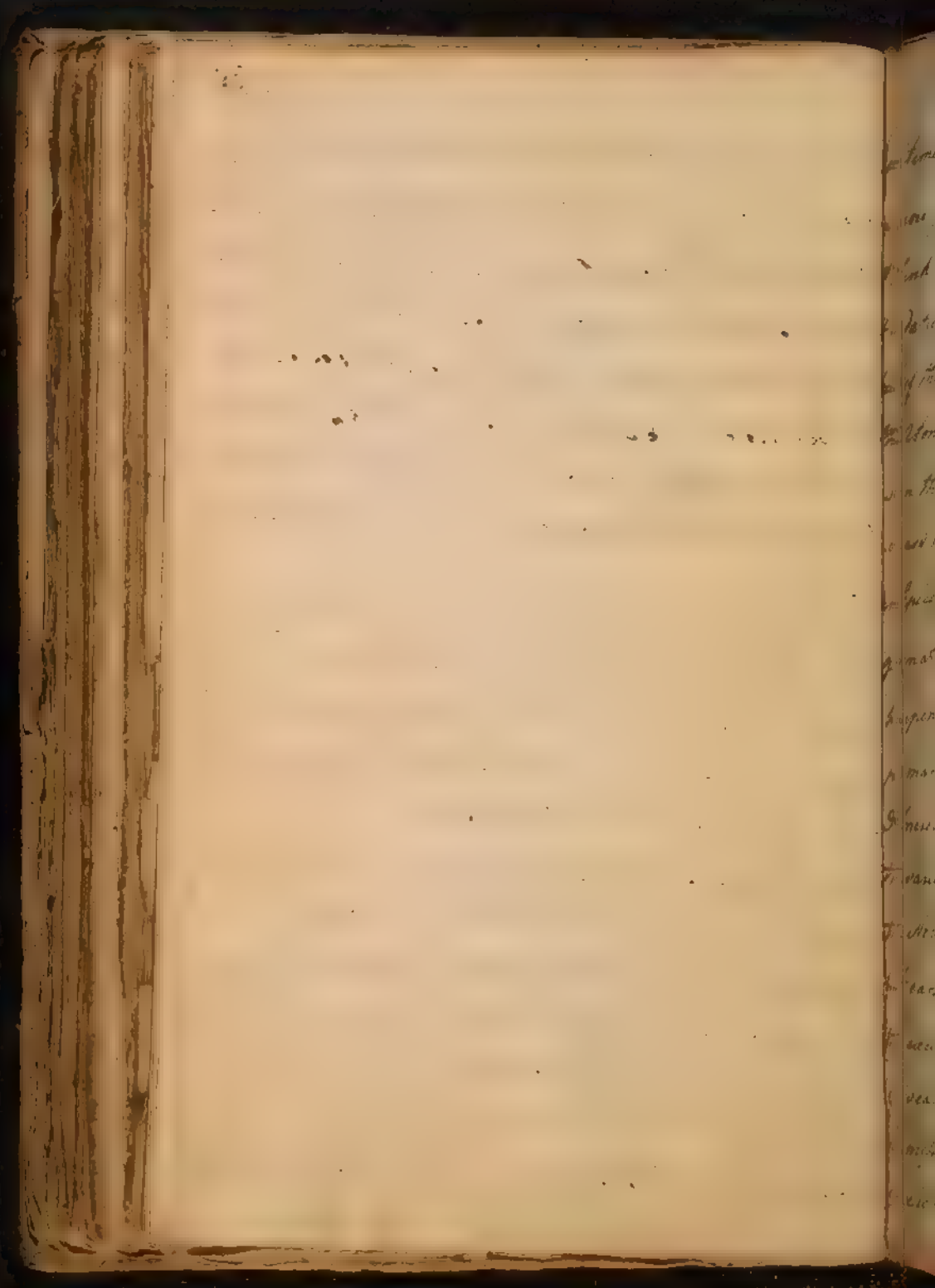
Delirium ferox it is improper but when there are
 some of these or especially where they have been removed
 I think a full Dose of Opium is greatly to be depended
 upon & we should employ it so as to get its full sedative
 Effects & manias require a very great one & from the
 operation of it ^{Dr} Haesthorner says on this I always
 find the good Effect arise from it when it produces
 sleep & given sometimes to the Quantity of ʒ^{ss} XV in
 the 24 Hours

Increased Motion from the moving fibres itself.
 This includes Convulsion & Spasm & I believe that
 whenever these continue for any length of time they
 are of service as in Epileptic Fits we often find it time
 to give them as we know in Tetanus.

The only Cases of these in w^h we are restricted is
 in the Case where there is Palsy or Fever.

In the first the Excitement is diminished & in
 the other I have already spoke of.

It is of Use in the Repetition of such Disorders de-
 pending on Atonia w^h is not easily explained & re-
 manded to say here that Opium when it takes off the



Excitement of the System may operate as Cold & give
a more firm excitement & a more durable Tension.

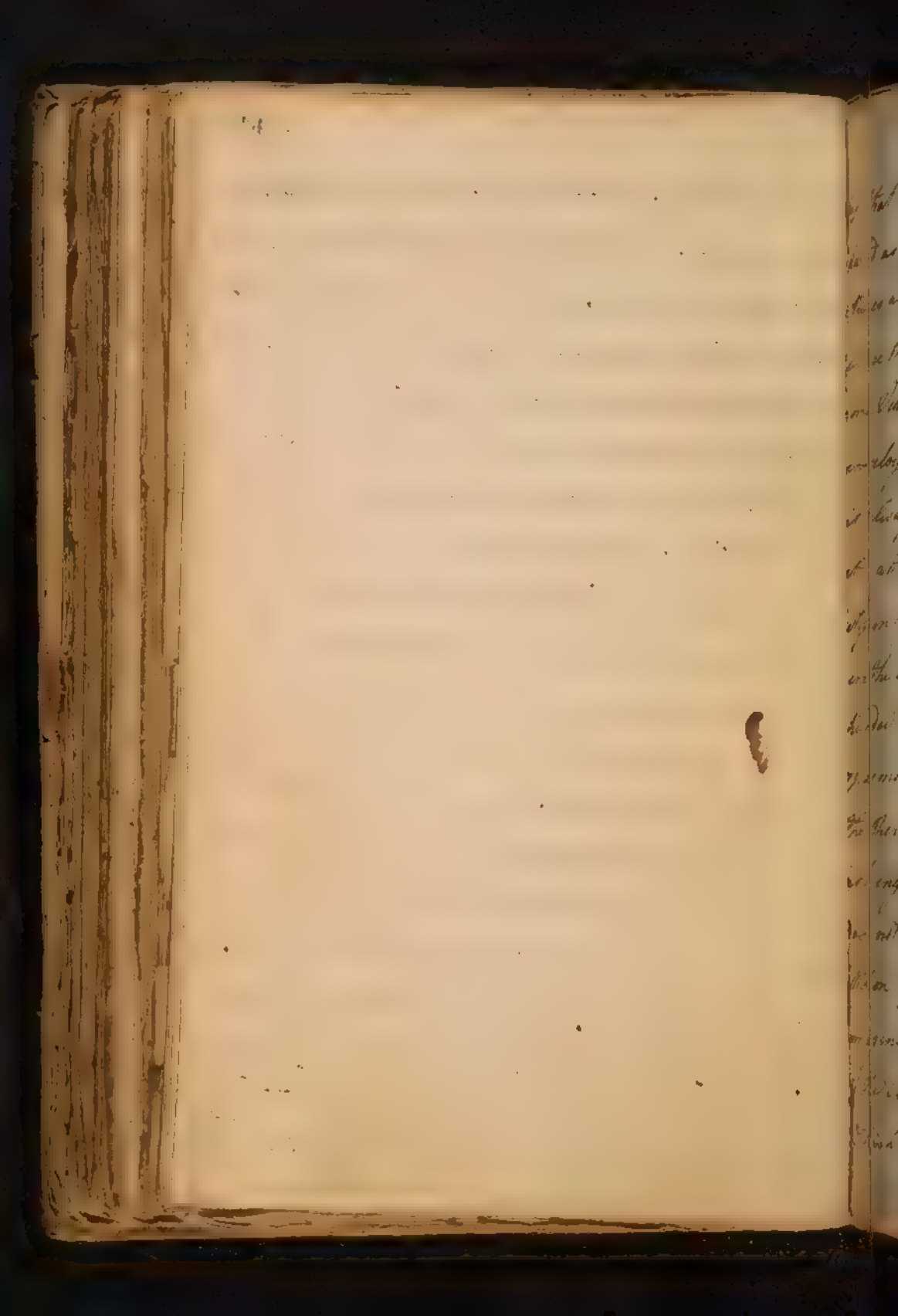
I think this probably occurs where the system last
sedative Powers concurs tho of this I am uncertain
but if the first Operation of it should come in when
the Atonia should occur & if the Atonia comes on,

when the sedative Power is passing off it may on-
crease the Disease as we sometimes find the Case

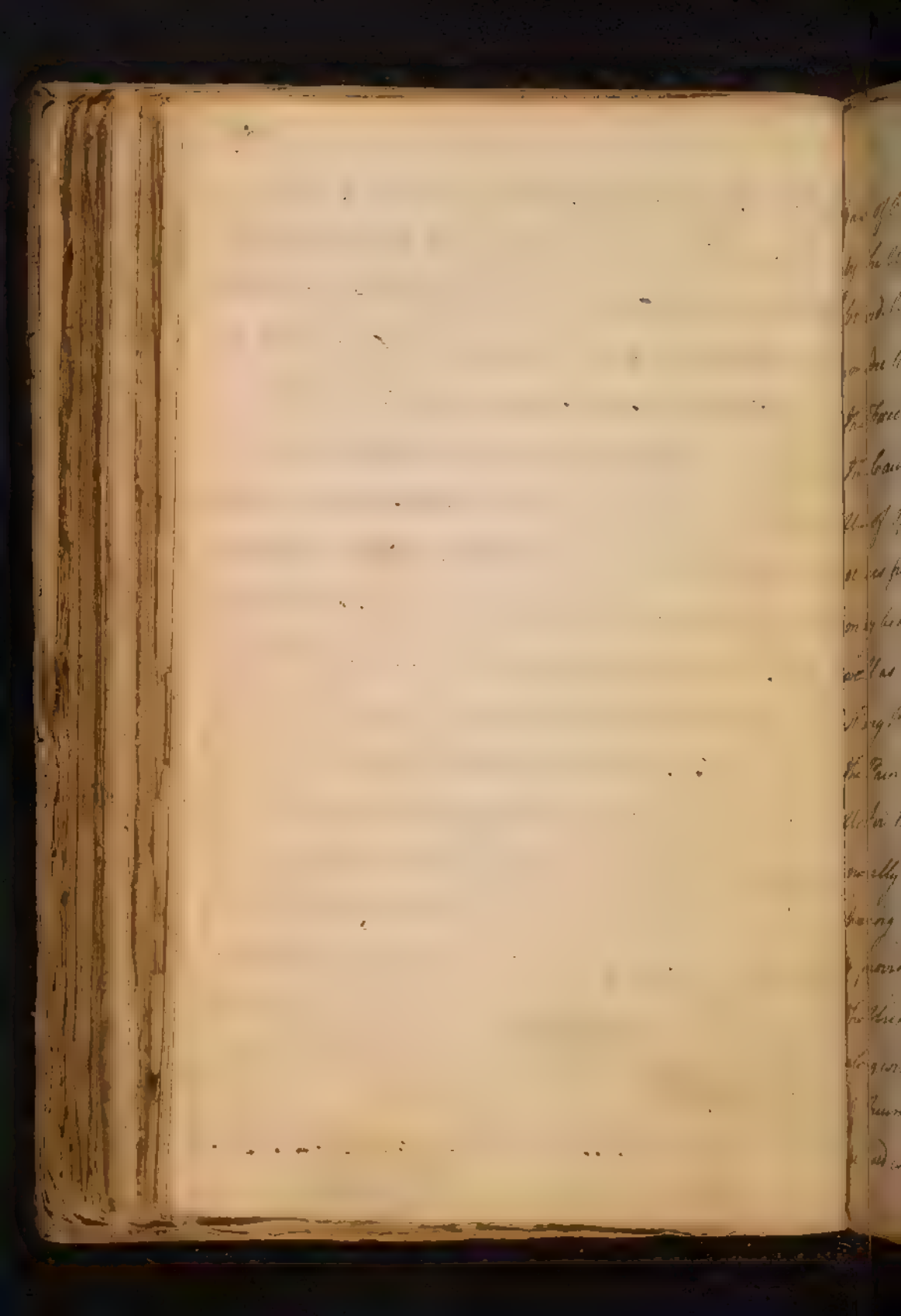
in Epilepsy where it is apt to induce Palsy unless
given at the exact Period when the Return should

happen, it is particularly pernicious when from a
permanent Cause.

Increased Action in the moving Fibres employed in
the various Excretions. We find that Opium can lessen
the Action of the Vessels & diminish the Secretions
but cannot be given when connected with Fever of
the exalted State of the whole System as is the Case
of sweating which is frequently & commonly stopped
by Opium & is commonly increased. 2^d
Case is when the Evacuation can only be thrown out

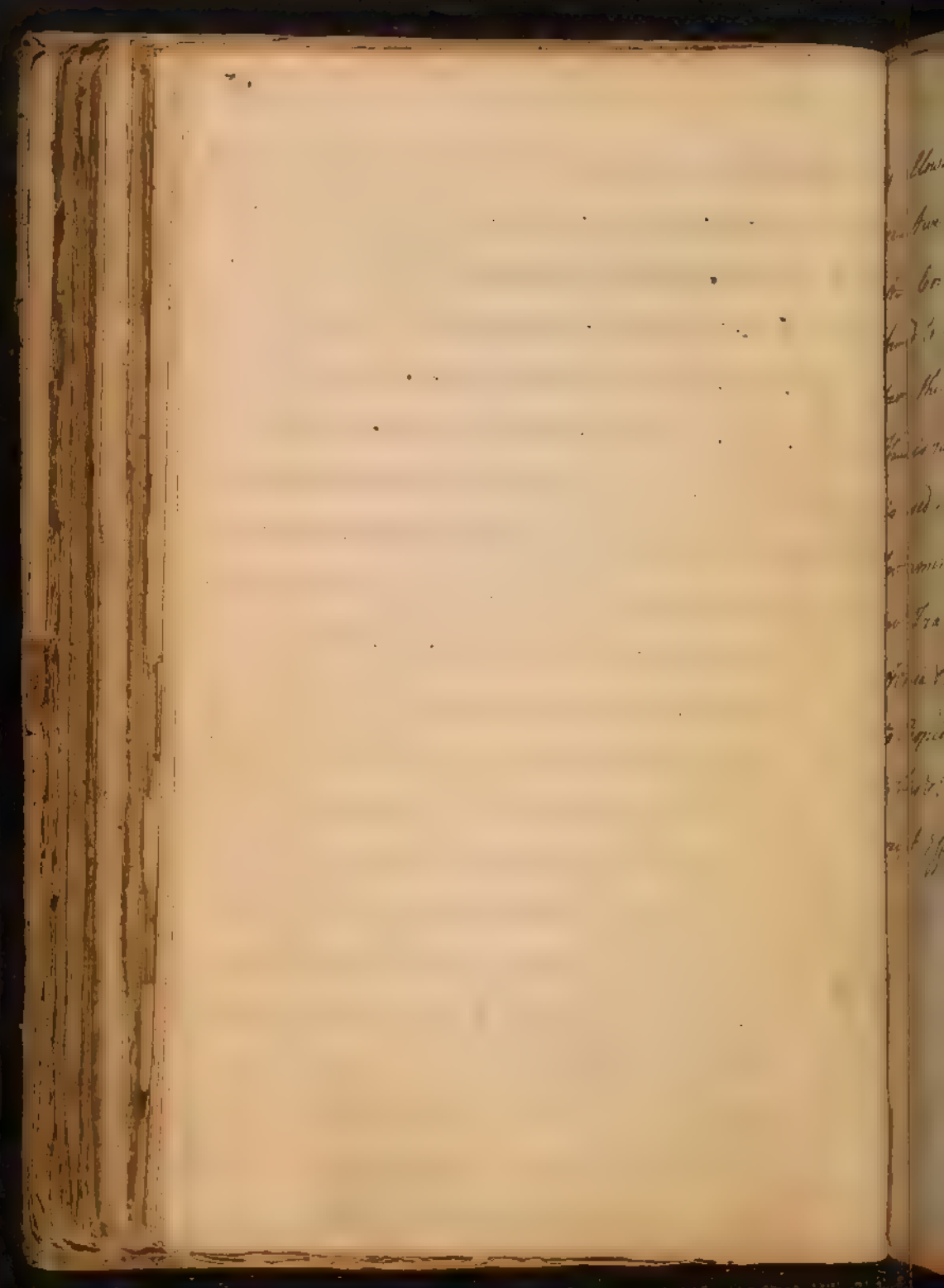


that Excitation when the Stimulus is accumu-
 lated as is the Case in morbid Matter in the Intes-
 tines as is the Case in the first Stage of Cholera
 where there is so great a Quantity of Bile in the pri-
 me Væl. There is a Doubt when it should be
 employed in Dysentery. I think this Disease
 is always more or less founded on Fever & when
 it is attended wth Fever at the Time it is improper
 to apply it if it is considered as depending on Acrimony
 in the Intestines. I imagine this should never
 hinder its Use as it alluviates Pain, takes off the
 excessive Constrictions of the Intestines & I think
 the Operation of Opium is very different from other
 astringents as its Effects are more transitory &
 does not while it cures Spasm stop the Peristaltic
 Motion of the Guts or the Excretions from them. I
 imagine the common Source of Acrimony is the Liver
 & the Secretion of the mucous Glands of the Intestines
 I think it would even remove this as we find often in the

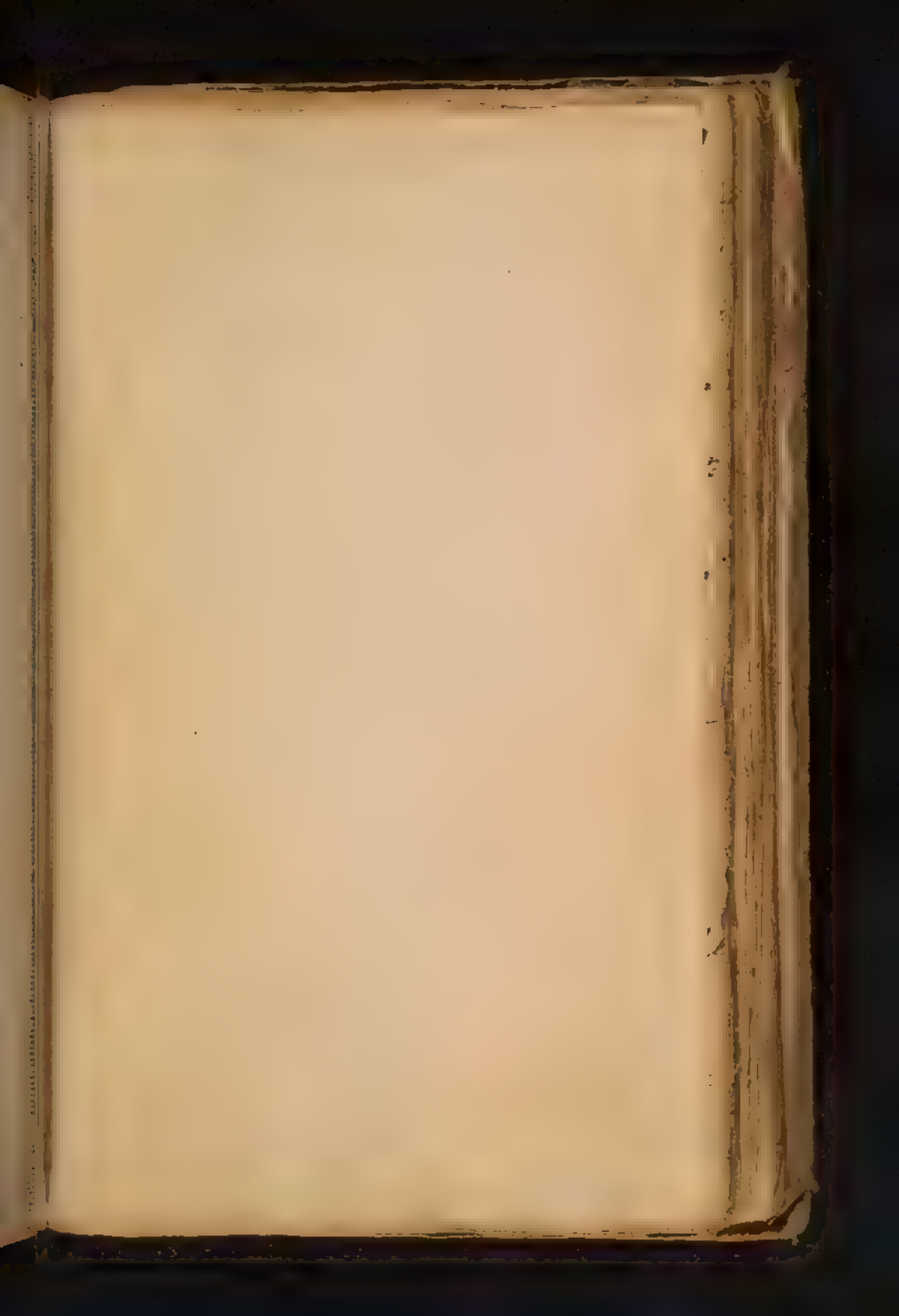


case of Cough when an acid Liqueur is found forth
by the Use of Opium it is retained & becomes more
thick. Besides this in Dysentery I think the spas-
modic Constrictions often retard the solid Parts of
the Faeces when the Mucus passes by itself which is
the Cause of Sybols &c. I think this is cured by the
Use of Opium. As suppressed Evacuation often
arises from a Spasm in the Secretories & so Opium
may be a means of inducing suppressed Secretion as
well as restraining a superfluous Discharge.

Many People labouring under a nephritic Fit have
the Pain stop when it passes along the Course of the
Ureter tho no Stone is voided but a Tranquillity is ge-
nerally brought on which must be from the Stone
having found its Way to the neck of the Bladder
& proving a Stimulus. Opium given here allows
the Urine to be accumulated & often the Stone is passed
along with it. With regard to the stimulating Power
of Opium it is clearly proved from Experiment & may
be used wherever the exciting the sanguiferous system



is a slow & where we fear no Harm from its
 sedative Power as we do in the Case of Opium.
 As a Cordial however I think its Use must be con-
 fined to those who are accustomed to it & as we can
 from the large Quantity give it at different Times.
 This is rarely practised in this Country, but more
 is used in its Place. It has been given to cure
 Indisposition & its Effects ascribed to its Stimulus
 but I rather think they are so from its stimulating
 Virtue & by that removing Spasms & I think its Use
 to People called of a nervous Habit is to be ascribed
 thus & I imagine is rather from its sedative than
 its effects.



These are Medicines w^{ch} are designed to
remove irregular Motions in y^e Moving
Fibres. It is a very difficult Indication
as we are yet much in y^e dark concern-
ing the Cause of Spasm upon y^e Acc^t of our
knowing so little of y^e Organization of
Muscular Fibres. What I have to
say therefore shall be delivered in a
few words.

As ist Spasm consists in an heap of
Contraction. whatever removes these
Fibres further apart will prove useful
such as Heat & Moisture.

2nd In Spasm there may be a State
of Immobility in the Nervous power.

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Every thing therefore ^h recovers the
Mobility of the Nervous power will prove
Antispasmodic.

3.rd Spasm often depends on an Over-
stretching of Muscular Fibres. The Cause
of Inflammat:ⁿ can only be derived from
this. This ² Congestion ^h attends it
sufficiently prove. Blood letting removes
this. & thus proves Antispasmodic.

4.th Spasm depends upon stimuli ^{acting} on
particular parts. Whatever therefore
removes these will act as Antispasmo-
dic, such as all Sedative medicines.

Spasm arising from Cause 4.th Is often
cured by exciting a stimulus in another

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part of the body or by exciting some
Passion of the mind. May not this
two Cauteries act in this way only?

6.th Atonia often lays ^{the} Foundation for
Spasm. Adstringents remove this
Atonia, & thus prove Antispasmodic,
either applied universally or topically
according to the Seat of the Atonia.

7.th Spasm depending on Cause 6th are
cured by Stimulants especially when
it is seated in the Elementary Canal.
we prove their usefulness in these Cases
from Flatus being discharged (which
always arises from Spasm) immediately
after the taking of Antispasmodics. The

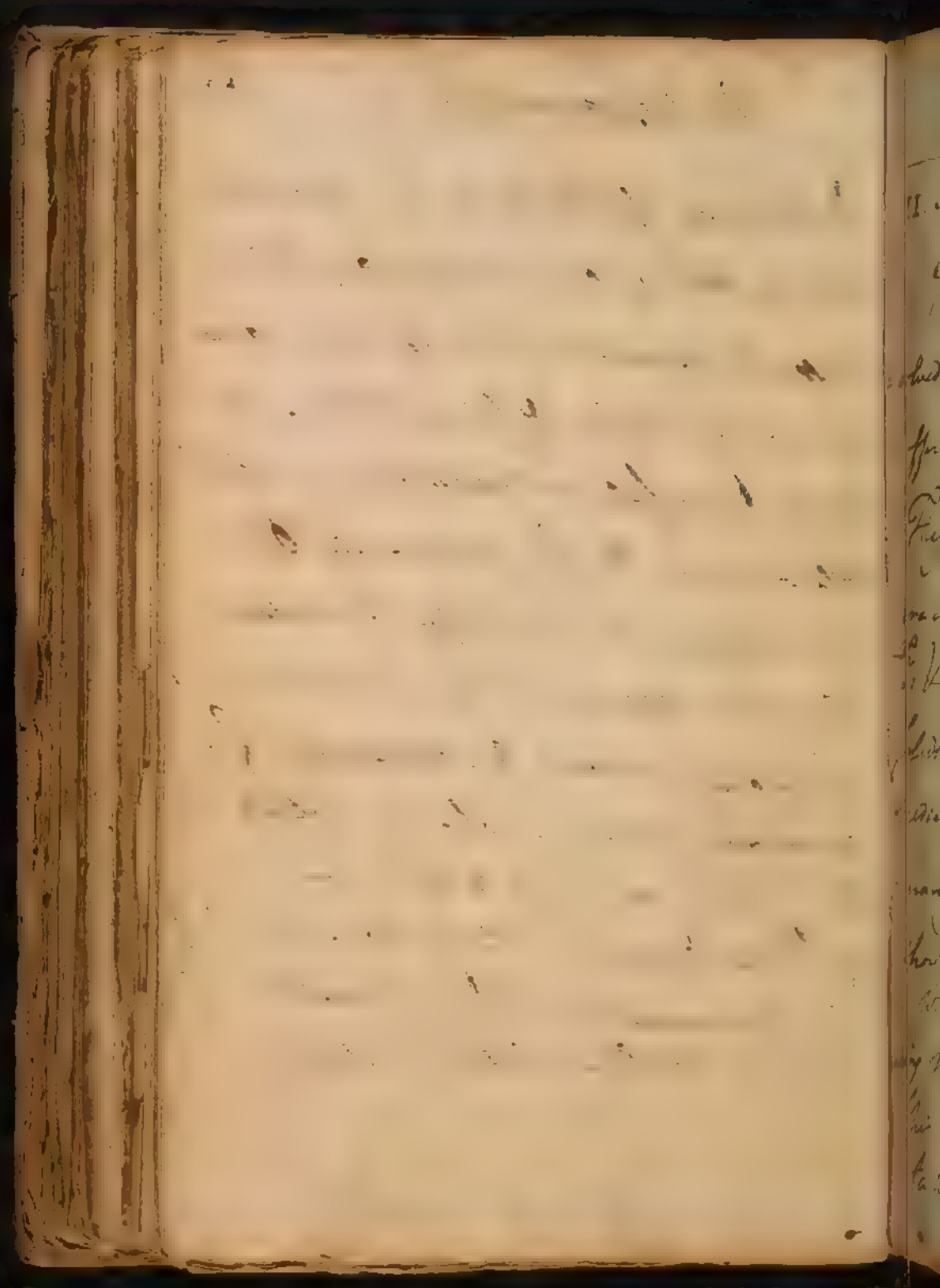
Expulsion of Flatus is in same measure a test of an Antispasmodic Medicine.

all Antispasmodics you see then are reduced to sedative & stimulating. the

Most powerful Antispasmodics are volatile Oils such as the Empyreumatic Other -

Cambhor Musc Castor ^{the} contain an Essential Oil on w^{ch} their virtue depends.

Alcohol proves Antispasmodic from its sedative virtues. What is volatile Alcohol? I am at a loss to determine which of y^e two classes it belongs to. most of Antispasmodics are a combination of sedative & stimulating Qualities.



II. De Morbis Fluidorum.

The Pathology of $\frac{2}{3}$ Fluids is involved in great Darkness. I can therefore offer only a few Conjectures on them. They are of but little consequence & are in general more or less connected wth & dependant upon the State of the Solids. we are acquainted wth the best ^{the} Medicines that Operate on the Fluids primarily. I shall therefore discuss them shortly.

When the Fluids are too viscid Altering Medicines are indicated. But how is this viscosity produced & in w^h cases does it take place? For my part I know no

proof of Lentor in the blood. if it ever
does exist it must be in $\frac{1}{2}$ Coagulable $\frac{1}{2}$ $\frac{1}{2}$
but we have no proof of such a viscosity
even in this part of the blood. The
natural consistence of the blood may
be refined by water, but in $\frac{1}{2}$ Body
I doubt whether water ever acts in this
way, for it always runs off as soon
as ^{it is} poured into $\frac{1}{2}$ System according to w:
I said before. Neutral Salts have been
supposed to thin the blood, but when a
Salt superabounds, in $\frac{1}{2}$ Serum it may
induce a morbid finding of them, but
I believe Salts never can be introduced
into the body in sufficient quantities to
Attenuate the blood. how absurd is it

to suppose $\frac{1}{2}$ of Nitre given in 24 hours
(for no Stomach can take more in that
time) can thin several pounds of Blood?

- Little of it mixes wth the Blood, but is
washed out as fast as it is taken in. Great

Common Salt dissolves the Blood. This we

prove from $\frac{1}{2}$ Lury & Phenomena
attending it, but w^e are $\frac{1}{2}$ Diseases w^{ch}

require such a Medicine? Who would

submit to take it in sufficient Quanti-

ties to produce such Effects? Soap

is said to dissolve the Blood, if it does

it must be by forming a neutral

Salt wth $\frac{1}{2}$ Acid of the Stomach, for Soap

never enters into $\frac{1}{2}$ Blood in an uncon-

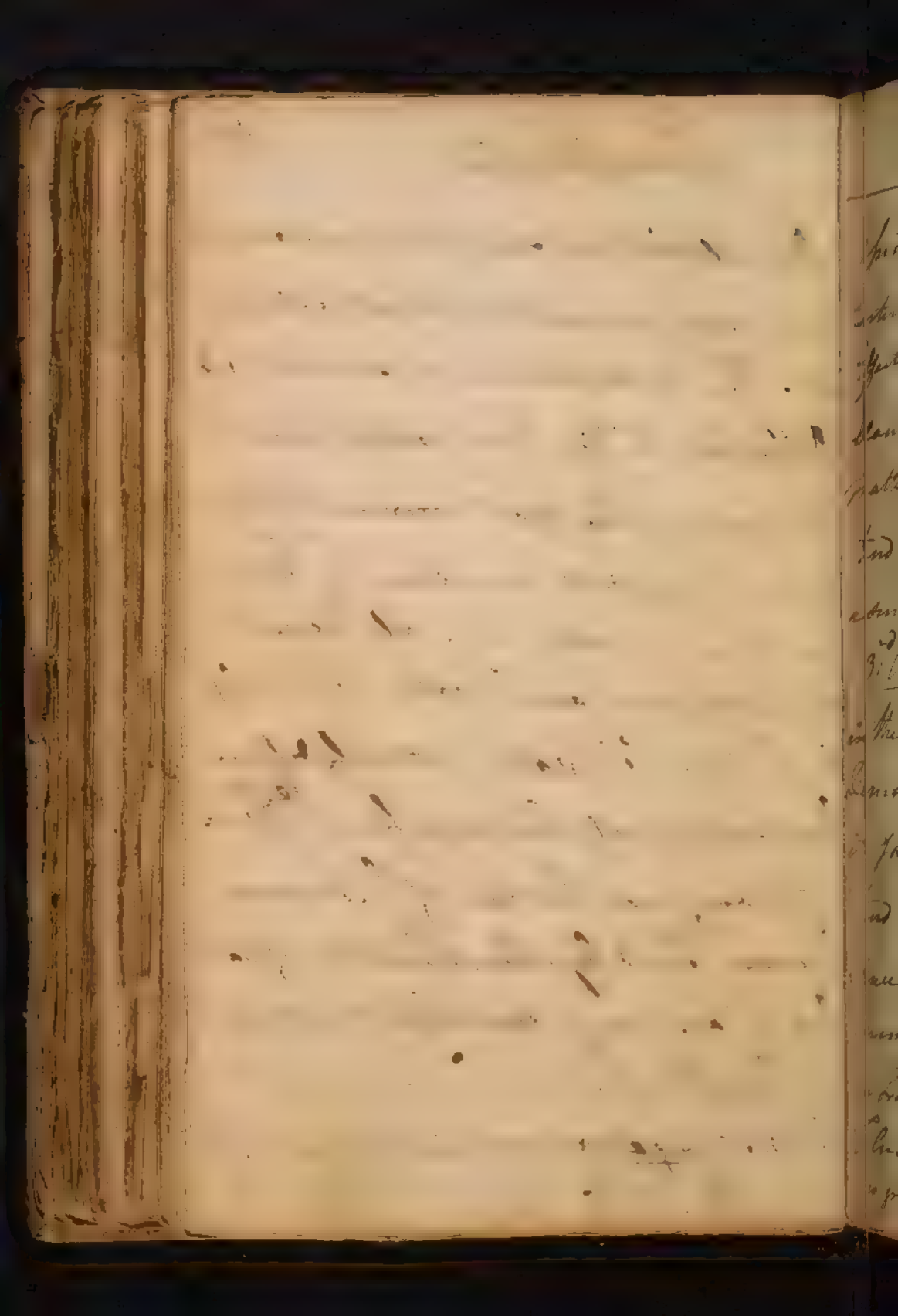
joined State. Alkaline Salts are the

most powerful Attenuants we have,
but these are seldom introduced in
a sufficient quantity to thin^g Blood.
if they were they w^d be neutralised like
of Soap in the Stomach. Here I w^d Ob-
serve that, many have supposed ^g Attenu-
ants dissolve Concretions in excretory vessels,
such as the Stone in ^g Bladder, perhaps
of Alkaline Salt, after being diffused may
again be concentrated in ^g Urina: & pro-
paga^d & thus dissolve stony matters, but
we have no Reason to suppose that
any Attenuants whatever can possibly
act on any other Excretory vessel in the
Body. May I doubt whether there ever
was a Stone dissolved in the Bladder by

any Medicine whatever. We have ^{often} seen several hundred pounds of fresh urine water taken to no purpose in Cases of Stone, for Altho' Relief has been obtained yet dissections have showed us the stone present in the Bladder as large as ever.

It is hard to tell when a Morbid Ferment
 takes place in the Fluids. It occurs
 only in those Cases where all $\frac{2}{3}$ functions
 are obstructed as in $\frac{2}{3}$ Fermy. But even
 here Inspiring Medicines can do
 nothing. The Cure of it must be attempted
 by Evacuations. & by such Stimulant as
 evolve but little saline Matter, & afford
 a great deal of viscid nourishment.
 all vegetables are of this nature &
 have their usefulness in the Fermy. how
 far are Fish. the Amphibia. and
 young Flesh disposed to evolve saline
 Matter? are they up to the same
 Animal Substances? I ~~leave~~ ^{leave} the
 Question to $\frac{2}{3}$ Investigation.

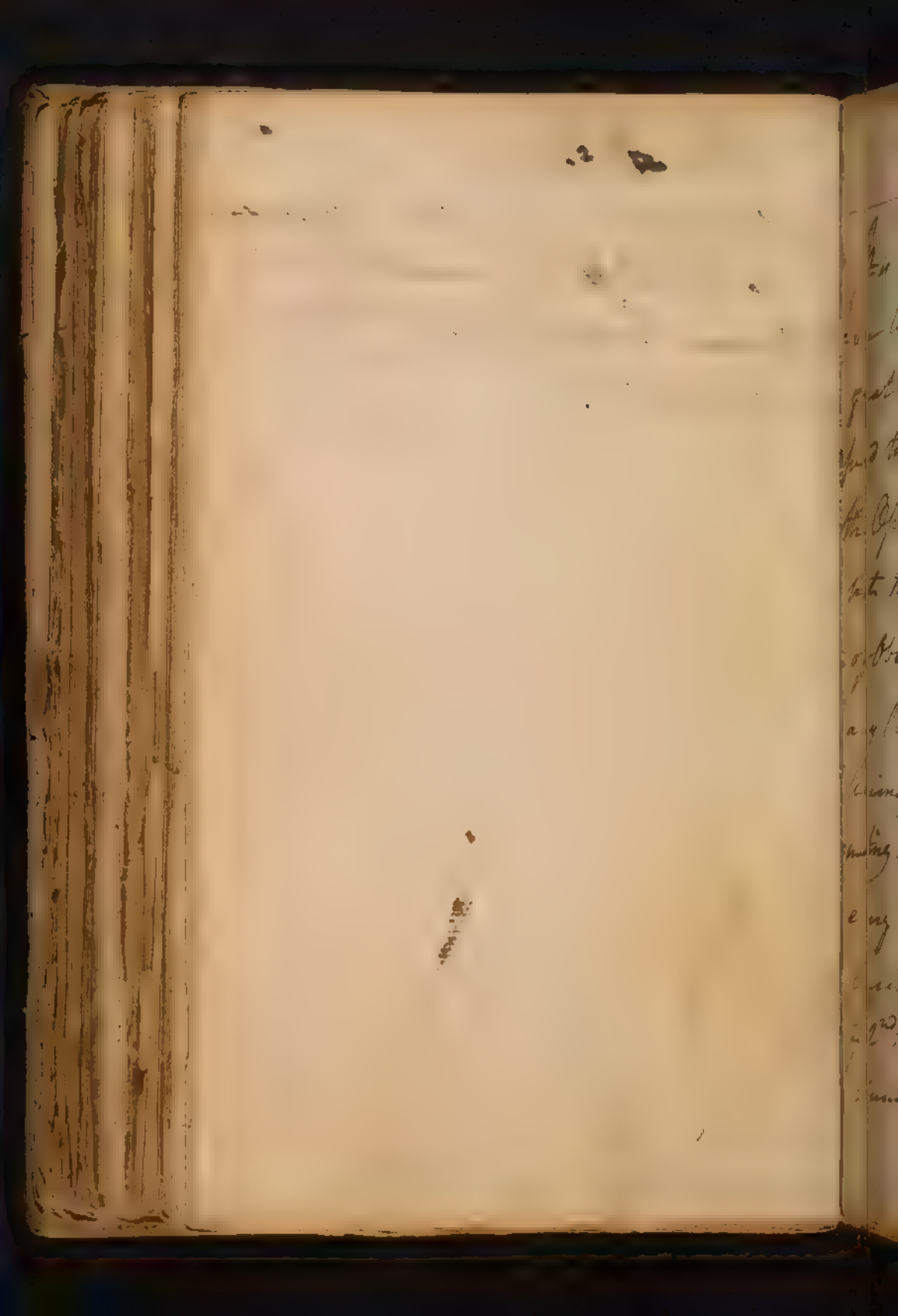
Demulcents are such Medicines as render
Acrimony in novent without destroying
it: This Indication is answered 1st by
Diffusion. 2nd by Enviscating & covering
Acrimony. The most corrosive Acids we
see are rendered inactive by being
mixed wth a little Oil. all Demul:
cent Medicines are 1st water. 2nd Mucilage
& 3rd Oil. 1st water not only diffuses
but carries off Acrimony from ^{the} parts.
- I have read Instances of $\frac{1}{4}$ Venereal
Disease ^{being} cured by a plentiful use of water,
but I am very doubtful of its virtues
in specific Acrimony
2nd Mucilages are much altered by $\frac{1}{4}$



aprimulating powers. & therefore seldom enter the blood so as to produce any effects there. Vegetables especially of a bland viscid nature evolve their saline matter but slowly & therefore may tend to obtund acrimony in y^e blood in a small degree.

3.^d Bil. This never appears formally in the blood, nor can it act as an bily Demulcent in the body. By evolving its saline matters slowly it may tend to give the fluid of a denser Consistence. The Bil deposited in y^e cellular membrane is designed only to be absorbed in Liver, where the tendency of the Fluids is to an acid state. I have no great Dependence upon it as a Demulcent.

Fig of bil taken in Exps house of Jussure
can do but little in Catarrhid and
Deflusions. However much Physicians
depend upon it.



It is hard to condemn upon practice
 our Acrimonyes. Vegetables form a
 great part of our Diet, & these are dis-
 posed to Acidity from yth nature & from
 the Operation of the Stomach upon them,
 but the System is provided wth power
 of Obviating it. neither have we
 any Reason to suppose an Alkaline
 Crimony ever present except in stag-
 nating Fluids. I shall therefore pass over
 every thing y^e relates to particular
 Acrimonyes, & proceed to speak of
 y^e 2^d thing proposed viz: of evacuating
 Humors from the Body.

2^o Evacuare

A Humorem unicuique sumptum.

Evacuatio may be bro't on

1^o By a greater Quantity of Fluids being determined to a particular Organ.

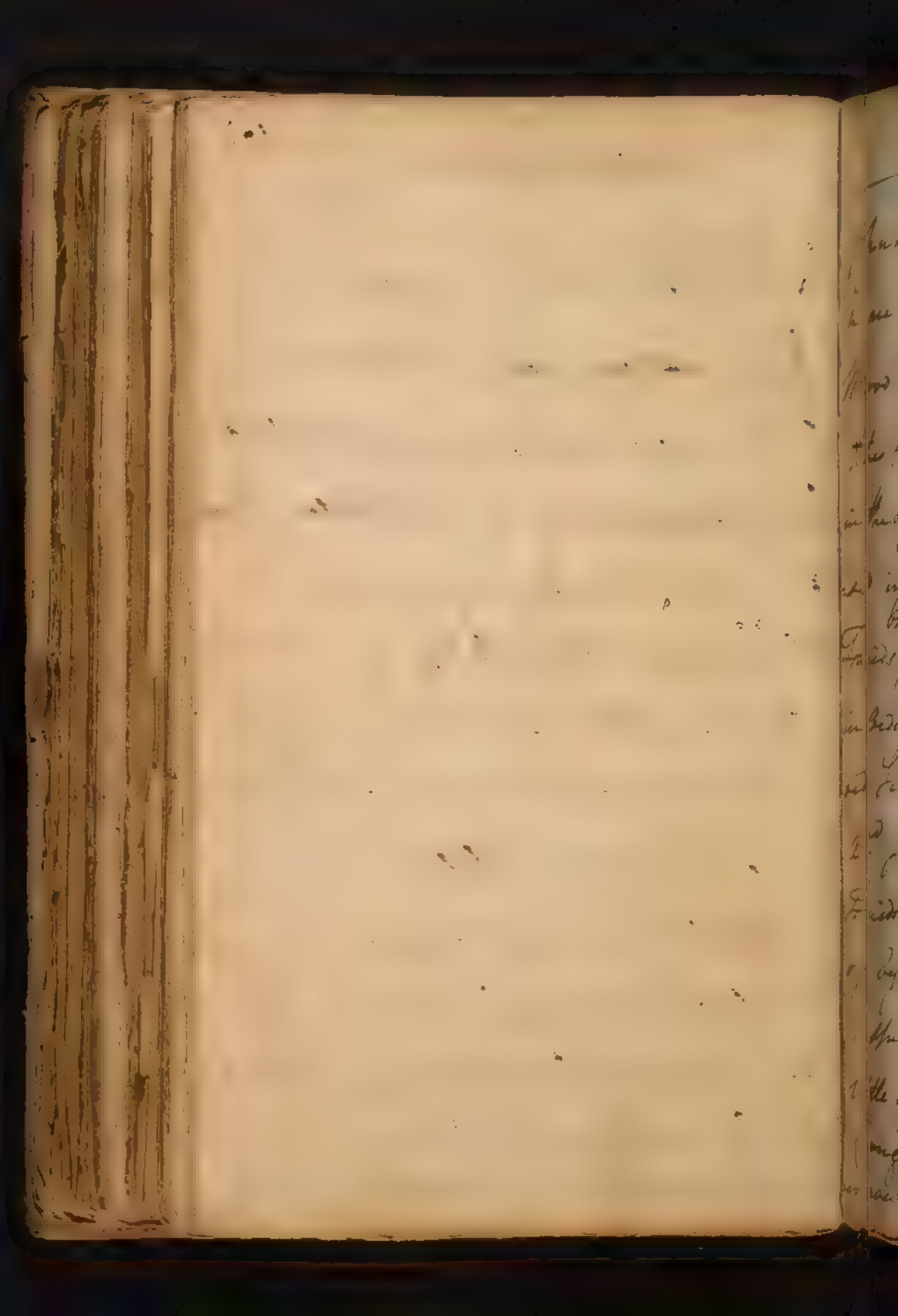
2nd By the Fluids being more or less prepared to pass off by a particular Function.

3rd By exciting the Action of y^e secretory or Excretory Vessels.

1st The Determination of a greater Quantity of Fluids may be bro't on by

1st increasing the Impetus of y^e Blood

& 2nd by increasing its Quantity. Secretions are seldom increased by y^e first.



by altering ^{their} qualities, but w:
are y^e substances w:^{ch} induce a change
on y^e nature of the saliva - Mucus
Bile? —

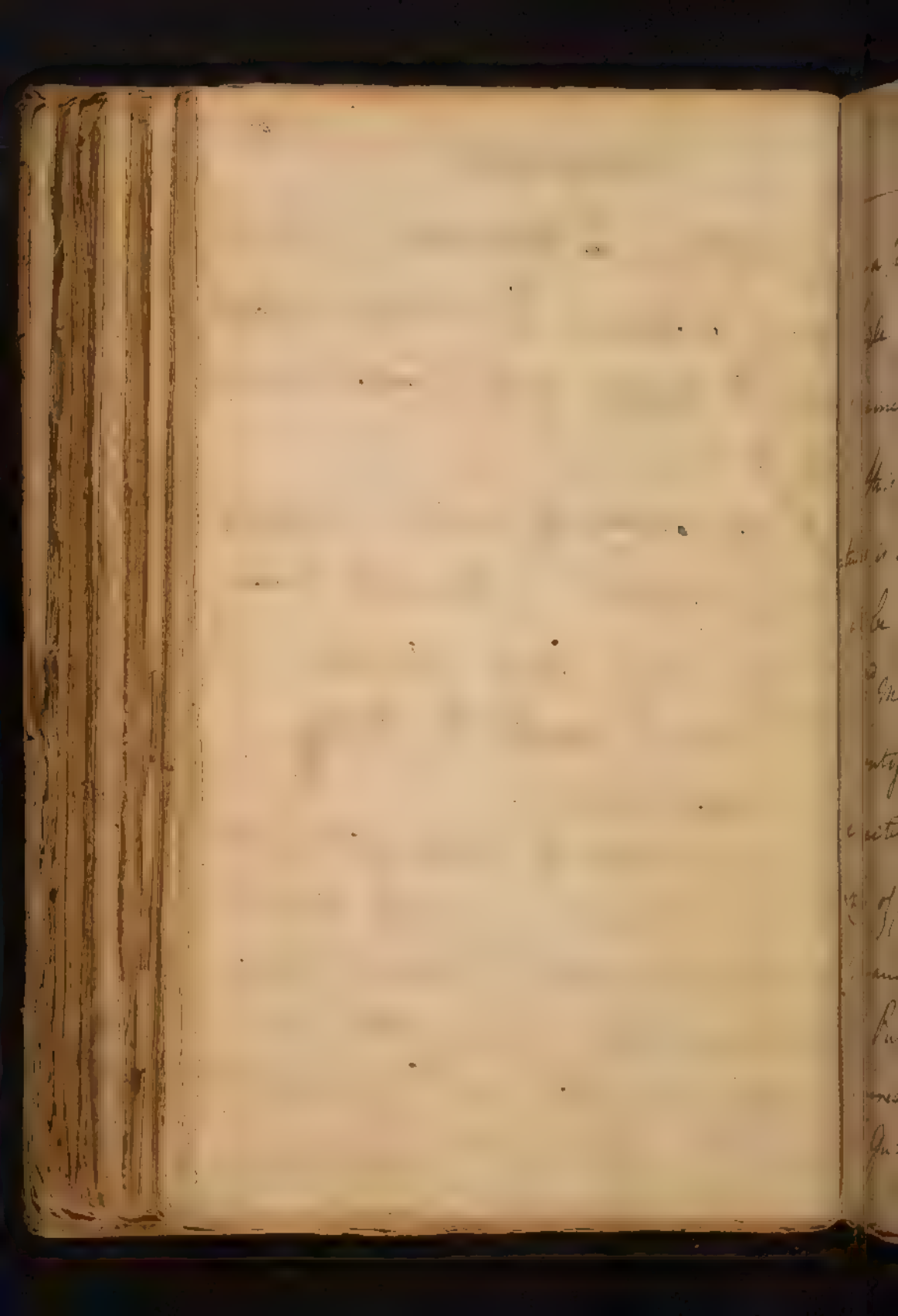
3^d By exciting the action of particu-
lar functions. This is to be done

1st By inducing such a condition of
the System w:^{ch} excites the action of
Secretory Organs.

2nd By exciting the action of Muscular
parts w:^{ch} prep on secretory Organs

3rd By stimulating substances applied
to the secretory Organs themselves.

1st This takes place in y^e Secretion of
Milk w:^{ch} is not an ^{an} increased Quantity



By a particular state of $\frac{e}{y}$ Stomach.

Bile too is increased by Anger &

Urine by Other Passions of $\frac{e}{y}$ Mind.

This manner of exciting $\frac{e}{y}$ Functions is seldom in our power, however it be reduced to certain Rules.

2nd Muscular Fibres altho' they be contiguous to Glands are ^{not} so easily excited as we could wish. $\frac{e}{y}$ Quan-

tity of Saliva is indeed increased by mastication. perhaps the Operation

of Purges depends too only by thus increasing the Crystalline Motion of $\frac{e}{y}$ Guts ⁱⁿ ~~in~~ ~~words~~ causes them to pour out

a greater Quantity of $\frac{1}{2}$ Liqueur Sec.
to be $\frac{1}{2}$ Glands of $\frac{1}{2}$ Intestines ..

3^d The most powerful Method of
exciting the Functions is by applying
stimulating substances to $\frac{1}{2}$ secretory
Organs. & of this we shall speak chiefly.

But this does not imply that
there are such things as specific Stimu-
li. Altho' there may appear to be
some Foundation for this Assertion.

For 1st Anatomy has not pointed
out any different Conditions of parti-
cular Nerves w^{ch} we suppose to be
specifically affected. 2nd most Acid
Substances affect all $\frac{1}{2}$ Glands alike.

Purging vomiting & the Diuresis
are excited by different Medicines only
in consequence of their being applied more
or less primarily or in greater or less
Quantities.

I shall begin wth speaking of the
secretions of Mucus. this you know

abounds all over the System but
more especially in the Mouth & Lungs
& Bronchia. Loquies therefore are

indicated in all Cases of Obstructed Muc.

the worst Inflammation as well as in all
Congestions of neighboring parts such
as in the Head &c. &c. &c.

Optthalmia - Gutta Serena - Deafness

noni

It even in Comatose & Paralytic Disorders. the means of exciting Inflammation are 1st warm Comentation or the Streams of warm water especially in the various Cases of Angina. 2nd by all the variety of Acid Substances which increase Functions especially those which are most transitory & are least liable to bring on Inflammation in the most delicate Head. As the Amara & the more violent Irritants may be used, for by increasing the Quantity of the Discharge, we abate any bad Effects of their Stimulus.

1894

1. The first of these is the
 2. The second is the
 3. The third is the
 4. The fourth is the
 5. The fifth is the
 6. The sixth is the
 7. The seventh is the
 8. The eighth is the
 9. The ninth is the
 10. The tenth is the

We know of no specific Expectorants. those medicines ^{is} w. prove Expectorants are of such a nature as to stimulate the Stomach Guts & Kidneys, & upon this Actⁿ we are ^{often} disappointed of our Intentions in giving them. the Discharge of ^{the} medicines by vomiting or stool may be obviated by giving them in proper Doses & at proper Intervals. Tobacco when dried & boiled loses its vomiting & by longer drying its purgative Qualities & at last becomes Diuretic & Expectorant.

The first of these is the
 fact that the system is
 not self-sufficient. It
 requires a constant supply
 of raw materials and
 labor. The second is the
 fact that the system is
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 not self-sufficient. It
 requires a constant supply
 of raw materials and
 labor.

This Secretion viz: of Saliva may
be excited by an internal as well as
an external medicines. Mercury
is the only medicine that answers
this purpose. I shall therefore briefly
enquire into its Modus Operandi.

It is supposed by some y: Mercury
acted upon y: body chiefly from its
weight. But this is a wrong suppo-
sition & affects the most general pro-
position in Philosophy w: is that y:
Quality of Bodies are overchan-
ged by mechanical means, & therefore
do not act mechanically upon one another.
If Mercury acted from its weight

its Effects would always bear some Relation to its Use, but this is not the Case, for we find it proves more desiccant than Liniment is made, nor do we ever find it in the Blood formally present. Its Combination wth salts greatly alters its Operation, the more Acid we add to it, the more we diminish its Gravity, but wth this, we increase its Virulence in acting upon y^e body, neither do y^e saline preparations of it & attenuate the Blood, but on the contrary rather coagulate it, w^{ch} shows that y^e salt rather than y^e oil acts upon it. Besides the Blood is never dissolved by it. It is never

introduced in sufficient Quantity
for this purpose. I have often
seen Blood drawn from Persons
under a Salivation w: its ordinary
healthy Appearance & sometimes w:
inflammⁿ. crust.

Q: What determines Mercury to act
upon y: Salivary Glands? It does
not act specifically upon them^{or} from
the Arguments we formerly used
as y: Specific stimuli. It^{is} from its ac-
ting upon all the Excretions as well
as the Salivary such as y: Gutta Serena
& Skin. may we often find it acting
upon these when the Glands secreting

Sialapoga

614

Saliva are not in the least affected.

- Mercury appears to be disposed
to associate wth the matter of ^{the} saliva.

- Can therefore we see are disposed
to unite wth ^{the} matter of the urine in
the same manner. The saliva ab-

ounds wth are ammoniacal salts.

It hence we observe the salivary
glands chiefly affected in ^{the} fever.

may not ^{the} I have a Relation
to this ammoniacal salt of the

saliva & may not this be the

Reason why the salivary glands

are affected in a manner analogous

to the Lunction in a Salivation?

[Faint, illegible handwriting covering the majority of the page]

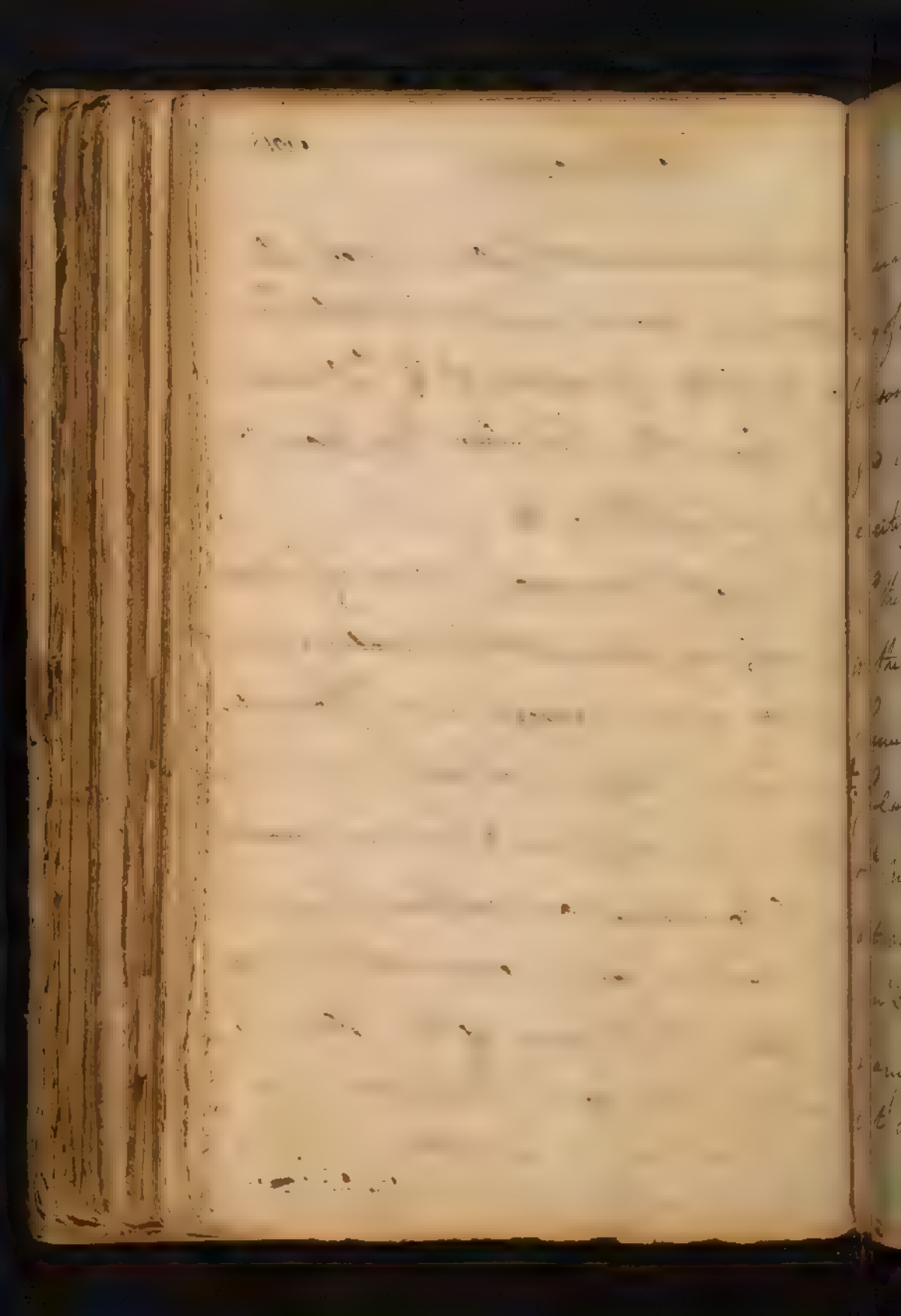
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Sialagoga

615

The Ammoniacal Salt we see when
added to water makes it dissolve
a double quantity of $\frac{1}{2}$ Sublimate
w: shows the Relation they have to
One Another.

Euphatic Mineral acts as a Sialagoga
merely by stimulating the salivary
glands in its passage into $\frac{1}{2}$ stomach.
In w: Case is Salivation indi-
cated? In all Cases where we would
wish to induce an entire Change in
the Fluids, or to evacuate Urine
from the Serum of the Blood in
w: It has its Seat. I do not imagine
that it acts as an Antidote upon any
Acidum especially the Venereal



anatomy. for 1st we have no knowledge of it, nor Reason to believe it by Reasonings a priori 2nd ~~that~~ we never find it cures the ven^e Disease wthout exciting a plentiful evacuations.

3rd the more stimulating we render it, the more successfully we use it.

Hence the subjoined usefulness of Location of Corroive Sublimate.

4th many Substances w^{ch} we know not only as Evacuants cure the ven^e Disease such as ²Guajac & many American Plants lately found out by the Indians.

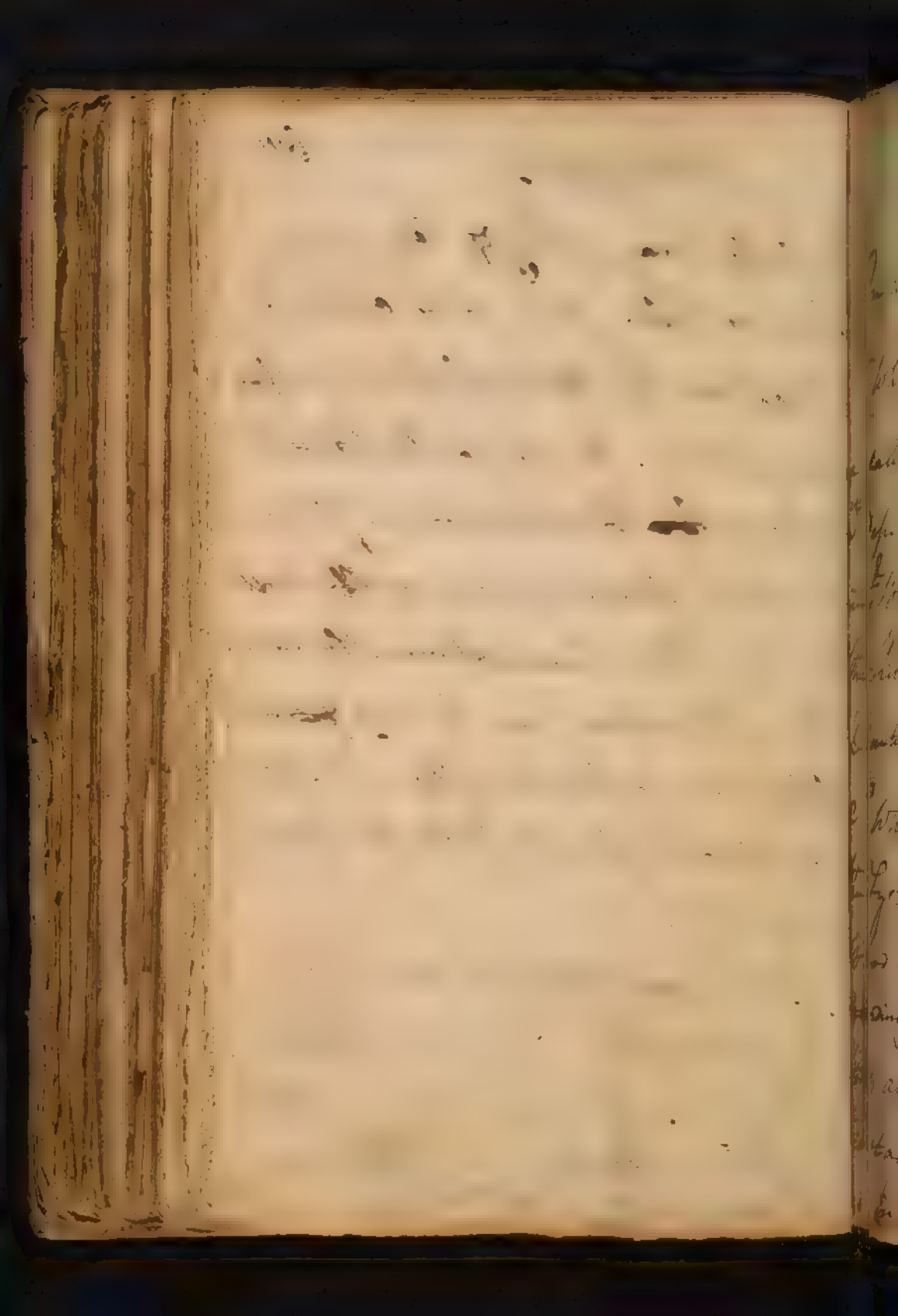
Supporting the Evacuations

The only way of the $\frac{1}{2}$ Operation
when is Salivation to be ordered?

I do not think it absolutely necessary
at any time. It exposes the Patient
to many ~~for~~ Inconveniences. I have
seen it performed in an equally short
time by Other Vaccinations. However
when Salivation can be used ~~for~~
safely, I see no Disadvantage in it. It
may always be at y^e Option of the
Physician.

Q: Repositions of $\frac{1}{2}$ are lost?

In the mid ones. Hence a late
Author has proposed applying it only
in the Form of Unction. From Experience
I can recommend y^e method -



In w^h Cases are Diuretics indicated?

1st When the blood abounds wth ^{the}

saline matter as in the Lenny

Depends upon ^{the} Permeability of ^{the} Gall

ing blood w^h usually passes off by

the kidneys. vegetables are ^{the} best

Diuretics for this purpose.

2nd When water predominates in

the System. I have often said the

blood could not contain an ex-

traordinary quantity of water. but

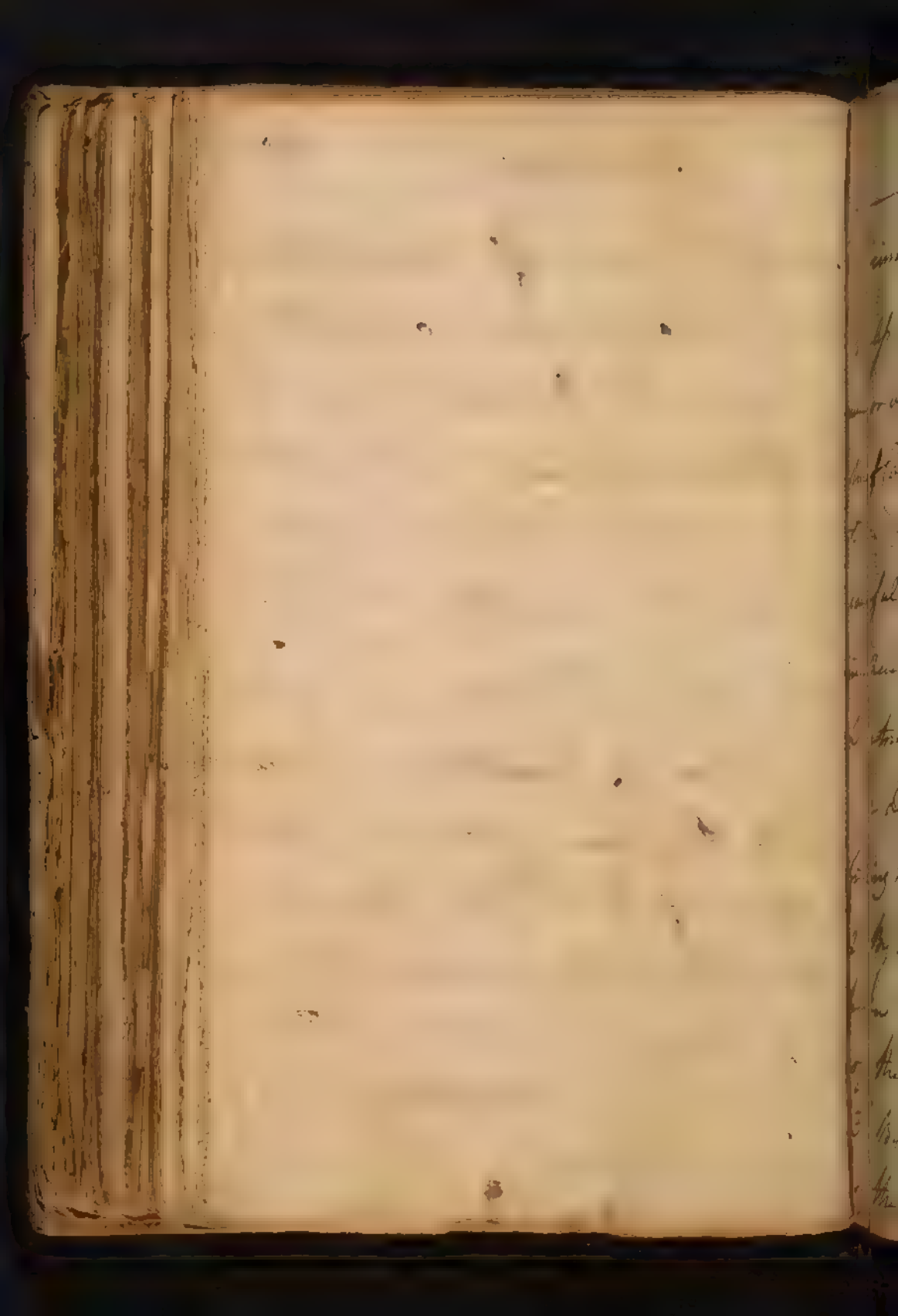
they are still useful when water

is stagnating or has been congested

as in the Dropsy in which a

exactly Function of Urine takes place, it w^{ch} perhaps originally reasoned the Disease. But how? Do Diuretics operate in Dropsies? - There is a Correspondence between excretion & Absorption, & by promoting a watery Function we excite the Action of Absorption. in whom? or no one has yet said. But we are sure of the Fact. I have seen vomiting when continued for 24 h^{rs} & some cure an Anasarca.

3rd Diuretics are indicated when the Urine is suppressed or when the



Primary passages are Obstructed,
unless the Obstruction is of long Continu-
ance or very much less. These are the
chief cases in ^{wh} Diuretics are indica-
ted. Dr. Boerhaave says they are
useful after Coagulation is finished
in Acute Diseases, but this is a
Doctrine I know Nothing About.

1st a Diuresis is brought on ^{1st} By
filling the body th w: watery Fluids.

2nd By diminishing Perspiration th w: we
now carry off $\frac{1}{4}$ more fluids parts
of the blood.

3rd By inducing a sudden Coagulation
of the urinary Secretions. Cold

contricts the Urinary Organs ^{ch} w. excites
them in such a manner as to bring
on an increased secretion of Urine.

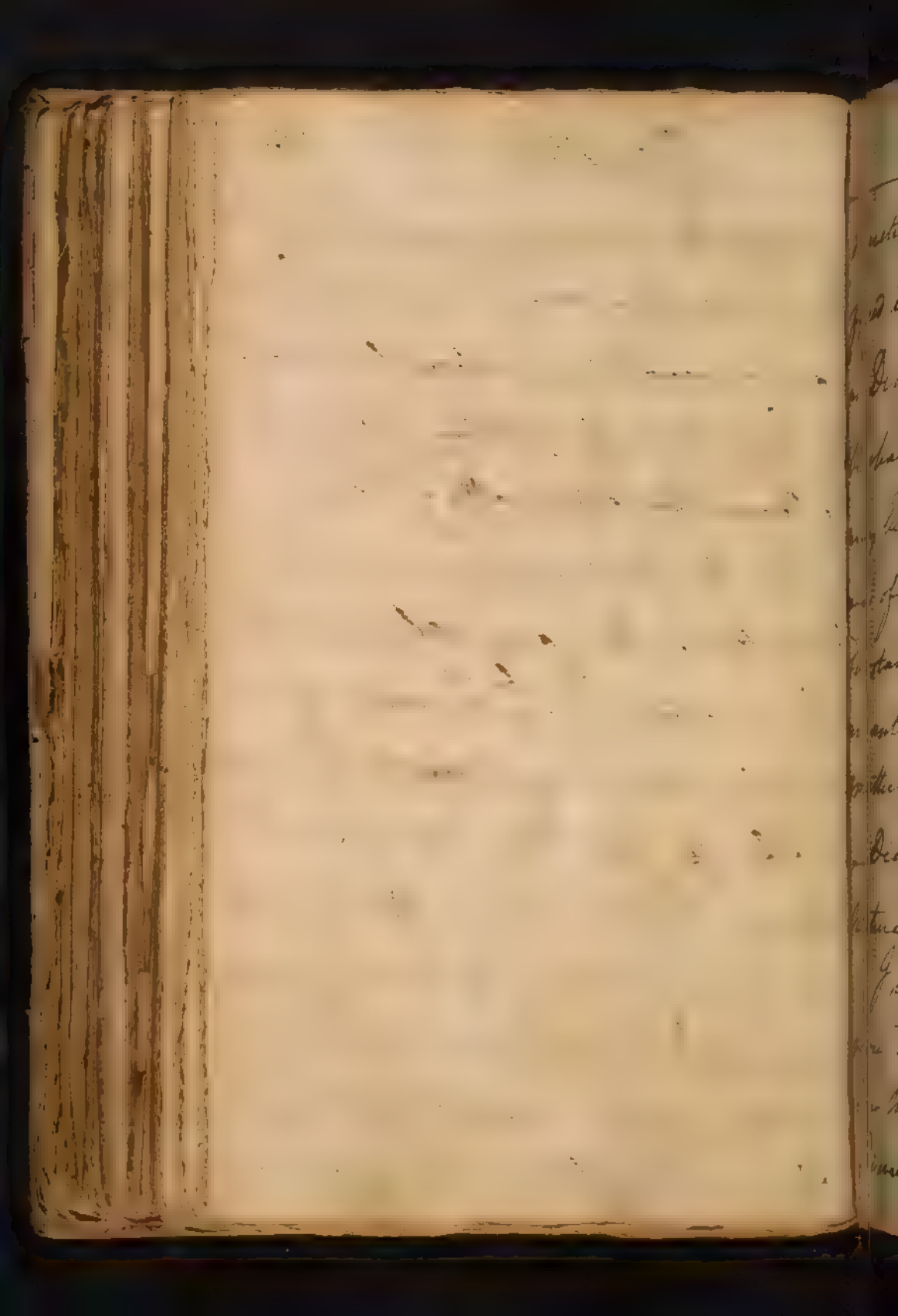
The best way of applying Cold is to y^e
Lumbos especially y^e ^{ch} back.

By the Medicines w. are called
Diuretic. These are Saline Matter

by uniting w. y^e th L. Serosity of our
Blood is more immediately disposed
to pass off thro' the kidneys. The

Acids are the most powerful Diuretics

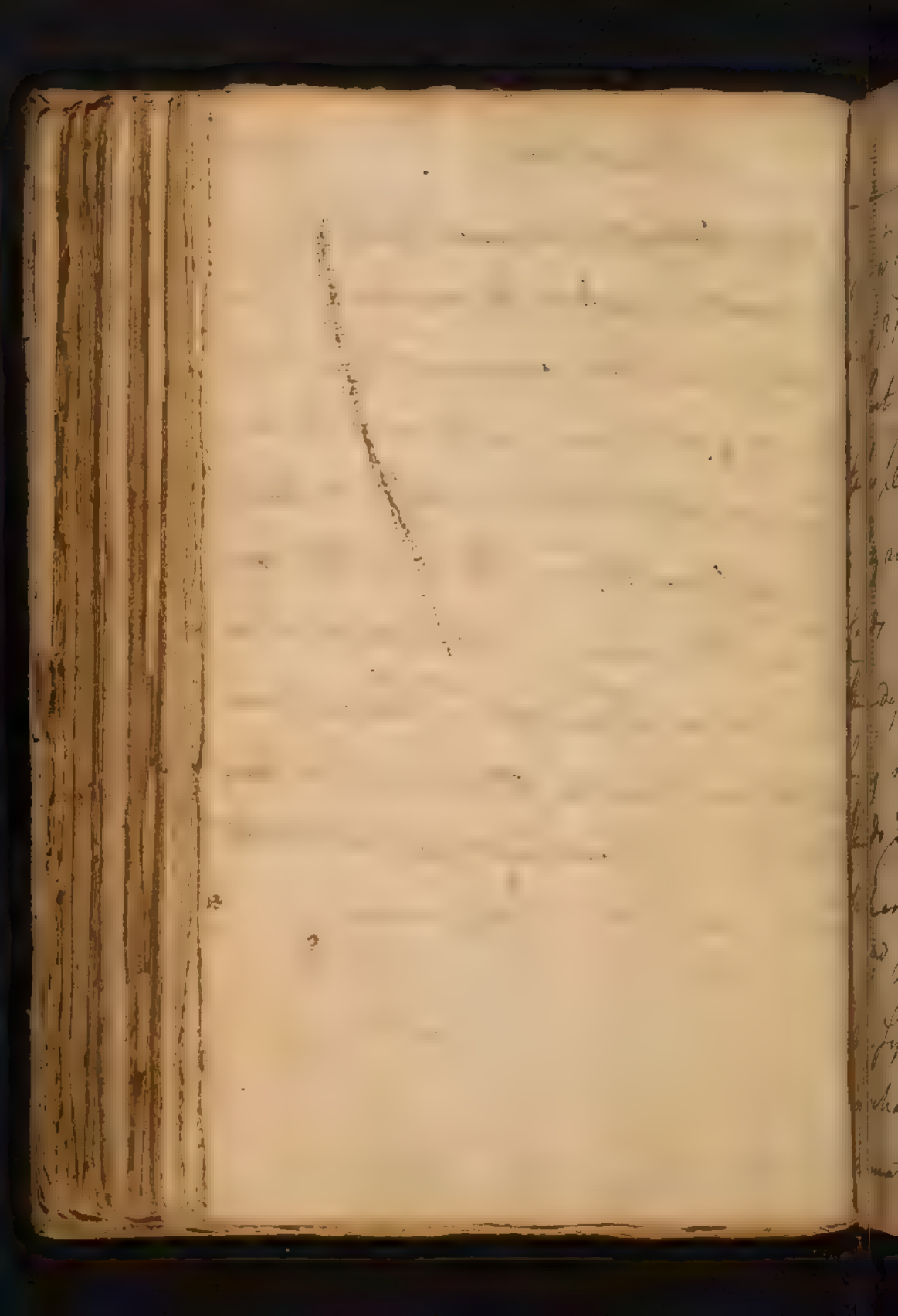
The Muriatic ^{ch} w. is the most volatile
of any of y^e ^{ch} Volatile Acids is the most
Diuretic of any except the Vegeta-
ble. Alkaline salts and more



diuretic than the acids especially the
acid Alkalies. Neutral salts act
as Diuretics if are not liable to
be changed in the stomach. They
may be given in larger Quantities than
any of the Other salts. I believe no
Substance acts as a Diuretic but such
as contain more or less of saline
matter. all from vegetablesth act
as Diuretics are of an acid volatile
nature.

I know of no Indication that it is
more difficult to answer than the one
we have been speaking off, as all
Diuretics have likewise the power

of stimulating the stomach & intestines.
we must therefore to render them
Diuretic either diminish their dose:
or give them in small doses.
They are apt to be so diffused that it
is necessary to give them pretty strong.
hence the use of Colchicum. Does
Combining Diureticth Sedatives
Medicines make them answer the
better? - I cannot say it does ^{an}
from my own Experience: -

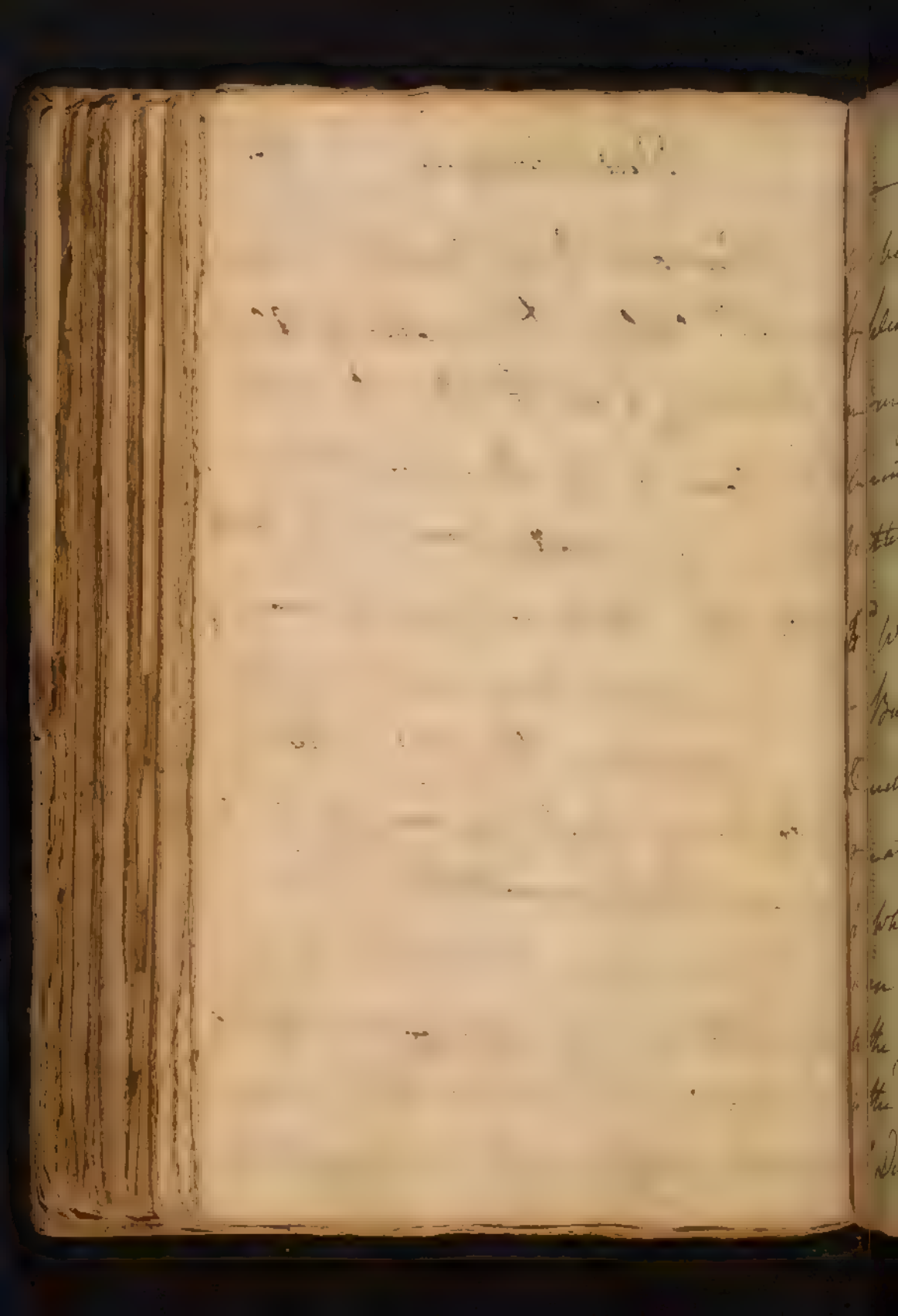


Diaphoretica

1794

In ² Cases are Diaphoretics indica-
ted. 1st When Perspiration is Obstructed
but it is hard to tell when this
takes place, or w^h Diseases it induces.
They are generally given in Catarrhs
of the Lungs &c. But we have no proof of
their depending on any acrid matter
being retained in the Body. I believe
they do service chief by bringing on a
proper Determination to y^e skin.

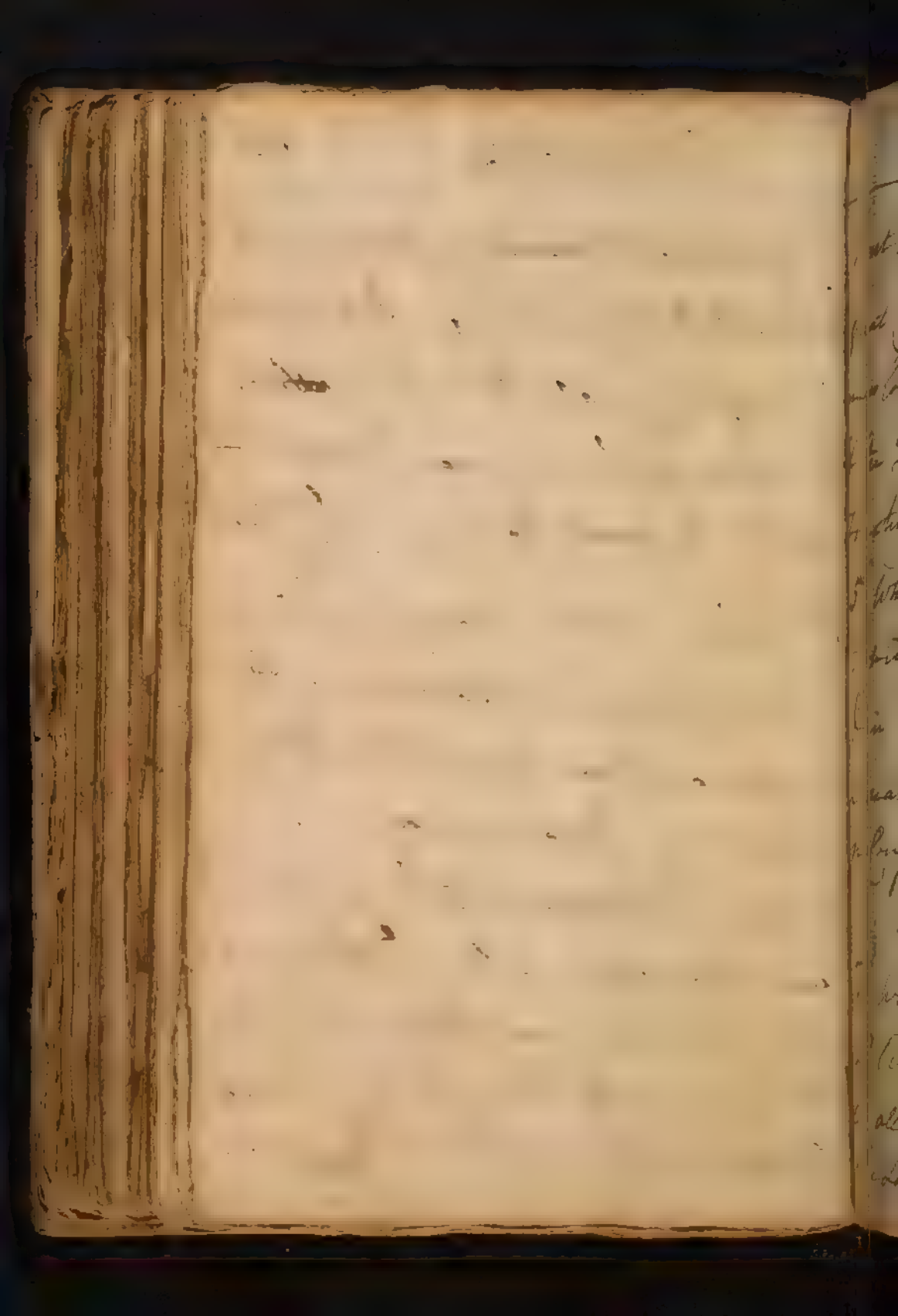
2nd When an Acrimony prevails in
the System. Acrimonies are mostly
discharged by the skin. This y^e Exan-
themata sufficiently prove. I believe



the venereal Disease might be cured
by plentiful sweating. Diaphoretics
are useful in all those Cases ~~all~~ of
Humors anywhere we see ^{the} acrimony
rather disposed to pass by ^{the} skin.

When water abounds in ^{the} system.
But they are not so safe as the
Emetics in these Cases altho' they
operate in ^{the} same way.

When ^{the} Balance of ^{the} system has
been changed or when ^{the} Determination
to the skin has been obstructed. This
is the Case in all Fevers, & hence ^{the} use
of Diaphoretics in febrile Diseases.



But Diaphoretics should be used wth great Caution here. The skin often remains long dry after ^{the} inhibition of them, & the skin after the most profuse sweating.

When the Action of the System is torpid. This happens in some cases in many comatose & paralytic diseases where we are sure there is no Congestion in the Brain.

The Diaphoretic Medicines are water taken in large Quantities & Perspiration & Sweating may be excited by all the various means of exciting the sanguiferous System such as Exercise

internal Stimuli ^{as last} w: act only upon y:
Stomach & not directly on y: Heart &
Arteries.

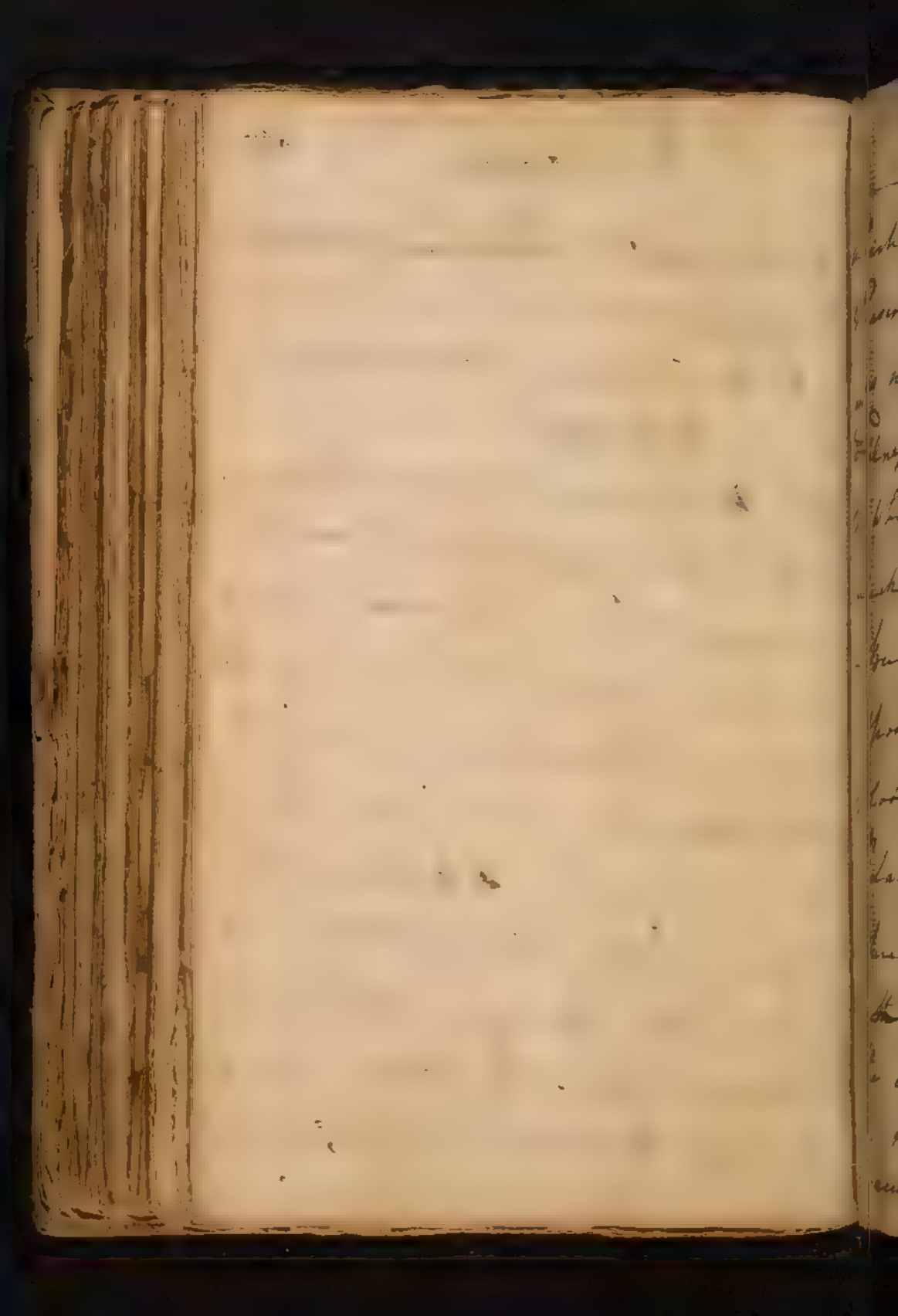
By exciting a Determination to y:
Skin. Heat joined w: moisture are
this Indication best. Cold likewise
promotes this Intention as also Frictions.

By various Matters acting on the
Body so as to relax the surface of
the Skin. Opium & all sedative
Medicines act in this way. Those
Substances likewise ^{as} act on y: Stomach
as diaphoretic such as cold water
Neutral Salts ^{as} are sedative & Refrige-
rant. Metals act in y: same way.

1st In Morbis Liquidum Indications
Purificatio sunt

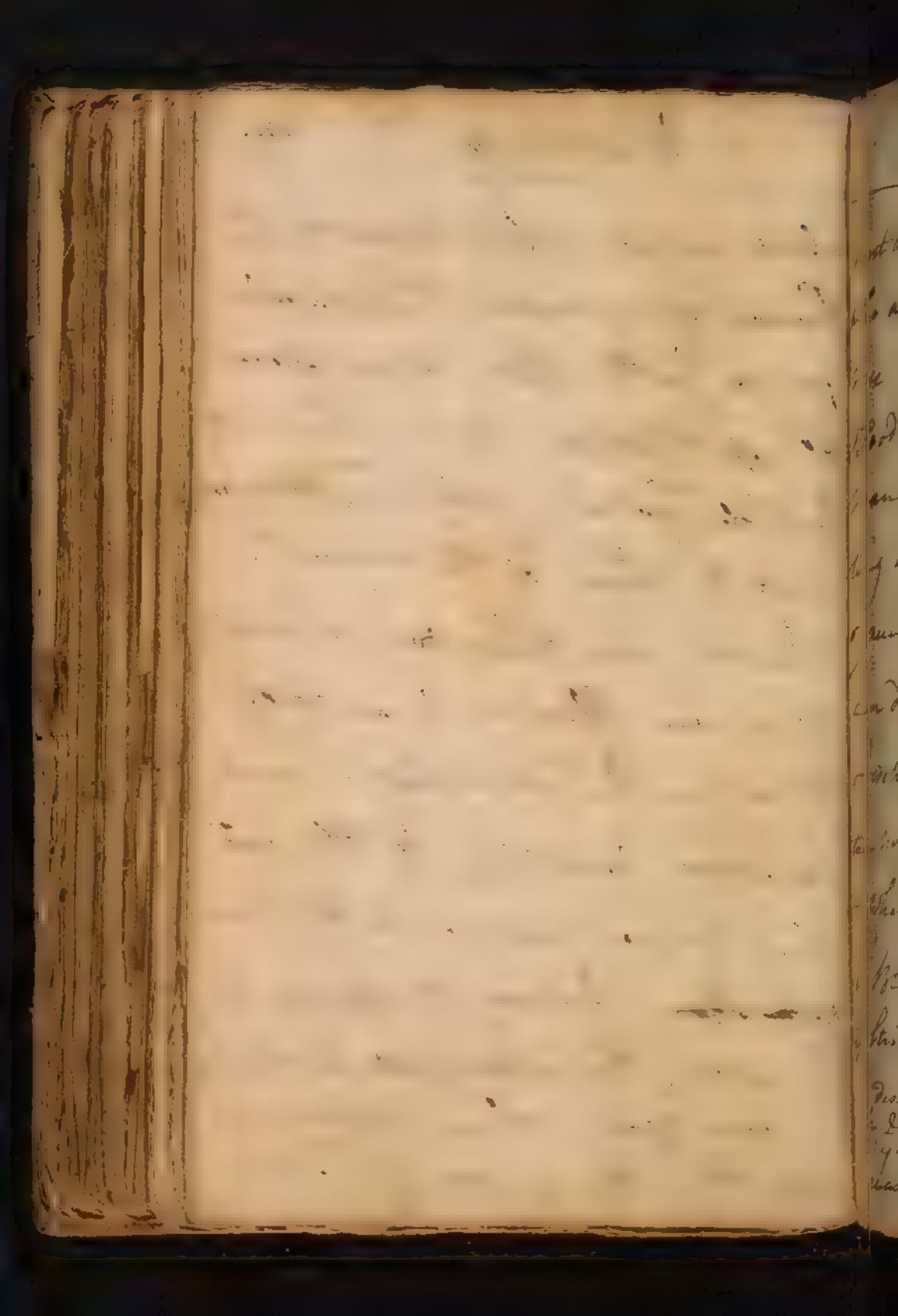
2^o A. Tanguinum ~~per~~ evanescere per
Menagoga.

The Uterus is evolved About Puberty.
The manner of it you will easily
understand from w. was said under
the Head of Nutrition concerning the
Doctrine of Evolution in general. the
Depletion of the uterine vessels leaves
them relaxed w. & disposes them
to pour forth blood again after a
certain time has been allowed for
its accumulation. this obliges us to
embrace the doctrine of a partial Plethora



which indeed infers likewise the
Presence of a general Plethora which
goes no further than to give an exact
Fullness & proper Degree of Tension to
the whole System. Why does ^{not} Abstraction
check the Flow of the Menstrues?

Because their Flow does not depend
Upon an Absolute Quantity of
Blood in the System, but upon a
Relative Quantity, & therefore
where Blood is drawn, the Balance
~~of the~~ ^{is} kept between the Uterus &
the rest of the System is still kept up.
But again whenever Blood is
evacuated, there we see a Plethora



most apt to happen. Menstruous
 who are subject to a bleeding of the
 nose are troubled wth Congestion of
 blood in their heads. in y^e same
 manner the uterus from having
 long discharged blood gets a habit
 of accumulating it wth no Abstraction
 can destroy. But Further the
 Discharge of the Menstrues is an ac-
 tive not a passive Evacuation. -
 When y^e uterine vessels are filled
 wth blood their Action is increased by
 the stimulus of the blood w^{ch} excites them
 to discharge it. This you see connects it
 wth y^e nervous System, & acc^{ts} in some
 measure for its being periodical. -

Menagoges are indicated when this Delay is preternatural & to fit it in such Cases only. Pathologists divide Obstructions of $\frac{2}{2}$ Menses into 1st Manica Mensium i.e. when the Menses have never yet flowed. 2nd Obstructed Menses i.e. when they have been suppressed. Many Causes concur in bringing on both these Cases of Suppression. — they may all be reduced to 1st Want of Impulse in the Blood in $\frac{2}{2}$ Uterine vessels. 2nd a Torpor in the Uterine vessels which renders them insensible to the

Stimulus of the Blood, or 3rd to an
increased Resistance in ^{the} Uterus.

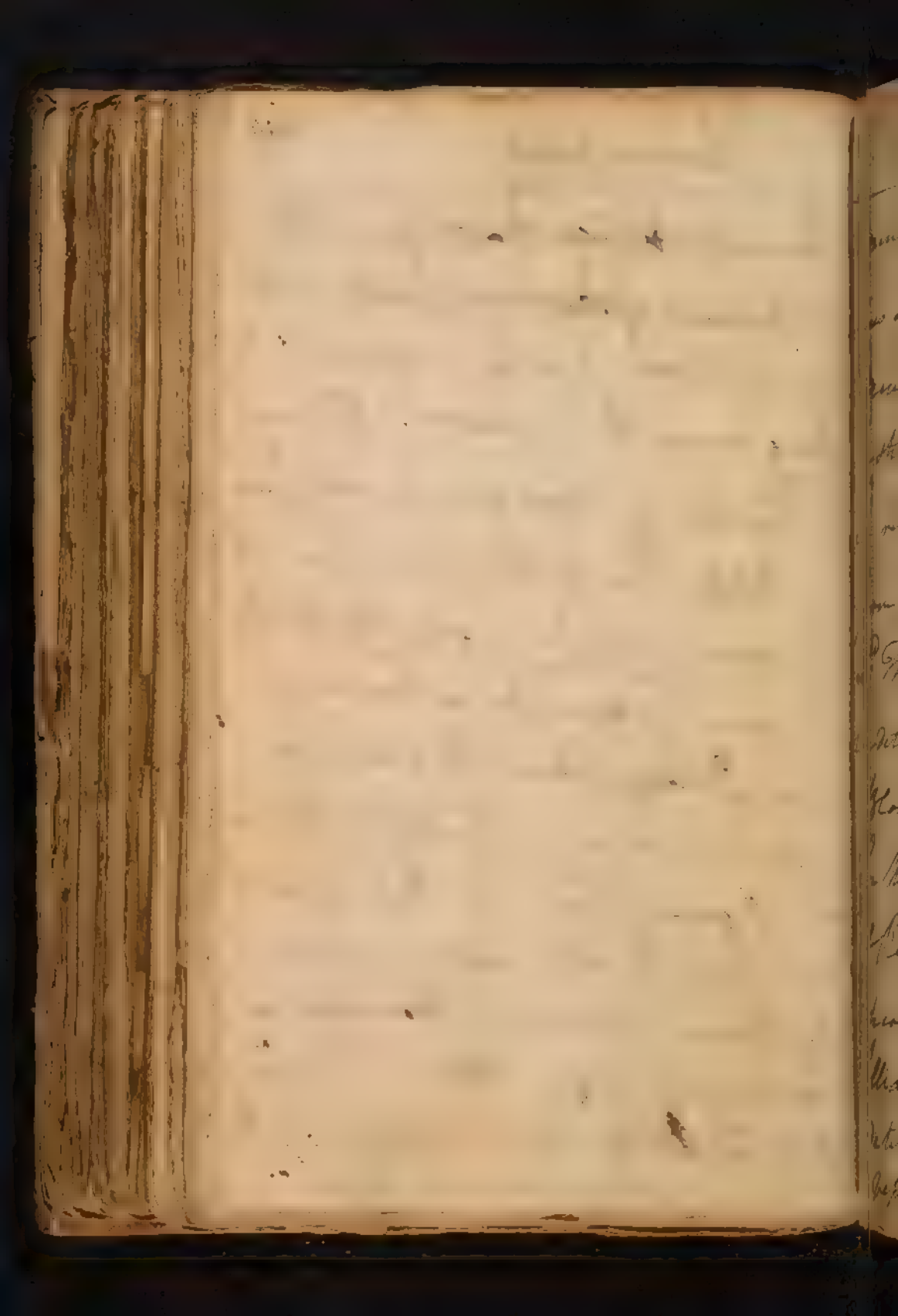
1st The want of Impulse in ^{the} Blood
may depend upon a want of
Aliment or weak assimilating powers,
or plentiful evacuations. ^{These} causes
operate but rarely.

The Chlorosis may depend upon this
cause or rather upon the 2nd viz: a
Torpor of the uterine vessels. The
3rd viz: Resistance in the Uterus may
be congenial, or arise from Ob-
struction by ^{the} w. I mean a difficult
transmission of Blood from a Fault
in the Blood itself, or from a

Constriction ^{is} is seated in ^{the} simple or moving Fibres. I believe the Menues are never obstructed from a Fault in the Blood, but by Constriction always when they are checked from accidental causes.

The means of promoting the Menues are 1. by restoring the Quantity of Blood by Aliment, or strengthening the ^{the} Assimilating powers.
2nd by encreasing the powers of the System in general by the Quality & Quantity of particular Foods -

Exercise & Cold Bathing. The Application of Heat especially in the Winter Season has been known to bring down the Menses. The power of Electricity has done great Service in Obstructions of the Menses. its Stimulus is confined chiefly to the Nervous system, & seldom acts upon the Languid System. Tonic Medicines such as Chalybeates & Bark are of great Service in these Cases. & more purely Stimulating Medicines do Service likewise. Mercury in particular has often been employed wth Advantage in restoring the



Menstrual Flux. I have some-
times seen vomiting restore the
Menses. how does it act? Either
by stimulating the whole system or
by relaxing the uterine vessels
from stimulating the stomach.

3.^d The Menses are restored
by determining the blood to ^{the} uterus.
Blood-Letting has long been used
for this purpose from ^{the} notions
of Revulsion. but of this we shall
speak directly. Compressing the
Illiacs has been employed to
determine the blood into ^{the} uterine
vessels, but I cannot say I have

Often seen it used wth success in
some cases of Obstructed Menstrues from
Plutinate Causes it may do mischief.
By throwing the blood into the
Aorta &c. Purges are useful to
answer this indication. the lower
Extremities sh^d be excited by means
of Friction w^{ch} brings on a Determination
of blood towards the uterus. Bathing
the lower Extremities has been much
recommended, & I believe it is ^e
most useful Remedy to derive to ^e
uterus. It rarefies the Blood
& thus disposes to Hemorrhage &c.
By exciting the action of ^e

uterine defects. the most powerful
 method of doing this is 1st by the
 use of Venery. I refer you to the
 Doctors to determine when this Re-
 medy must be recommended. 2nd by
 applying Stimulat^g Substances to the
 vagina. they never enter ^{the} Cavity
 of the Uterus. I have no great De-
 pendence on them. they cannot act
 by their Heat, for nothing warmer ^{can}
 enter itself can be introduced into it
 so as to relax it.

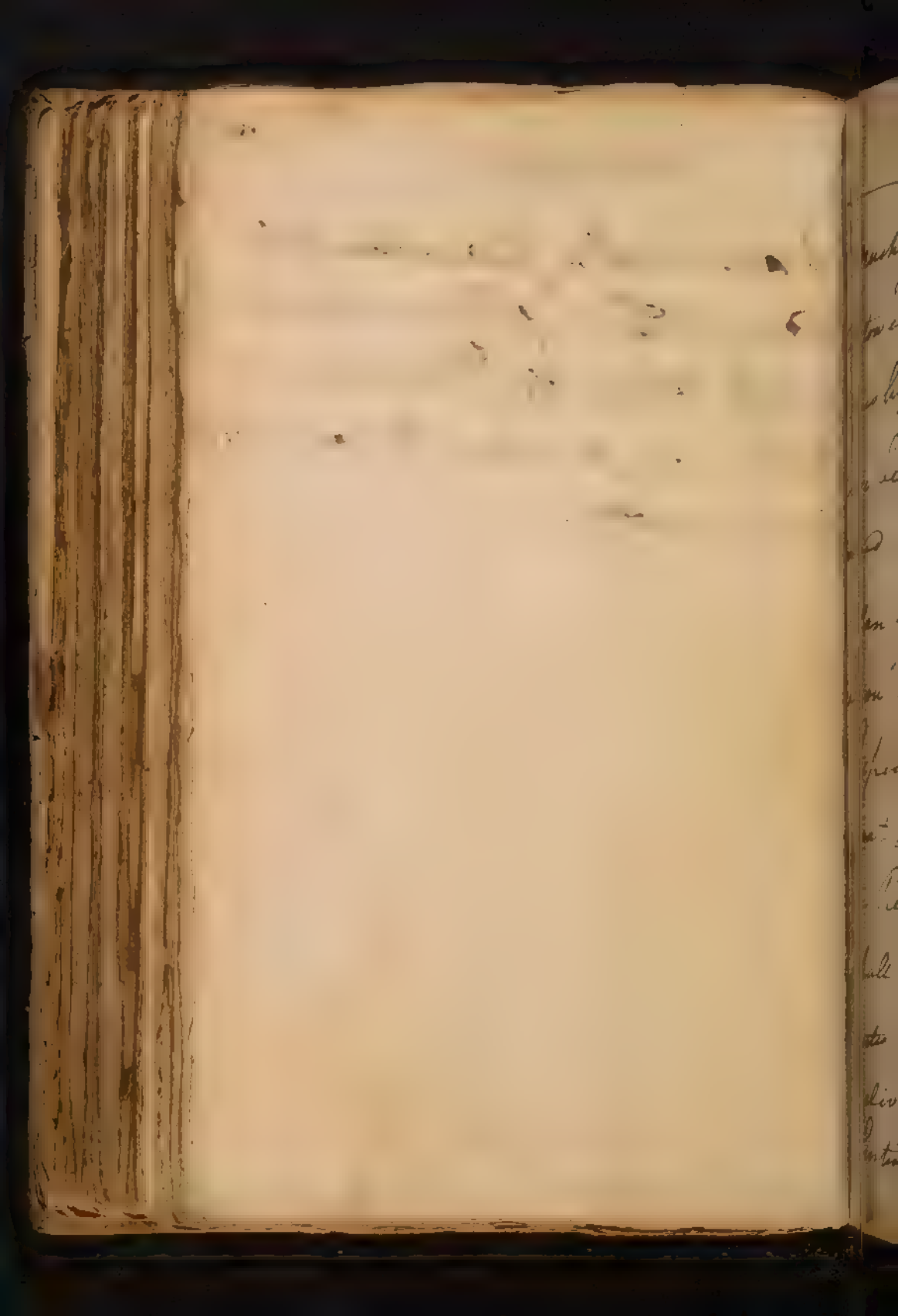
3rd Specific Stimuli have been propo-
 sed to the Uterus. the foetid Quins
 & Plants have been supposed to

act in this way, but I would choose
to refer their Operation to their
Antispasmodic virtues. Woss proves

Menagogue either by discharging the
Blood to Hemorrhage ^{or} much
Doubt except it is from ^{the} Hemor-
oidal vessels, & then it is done from
the passing unchanged thro' ^{the} small
Gutts, or it may prove Mena-
agogue from stimulating the Rectum
^{or} we know is connected ^{to} the
Uterus, or lastly it may act
merely as a Purge.

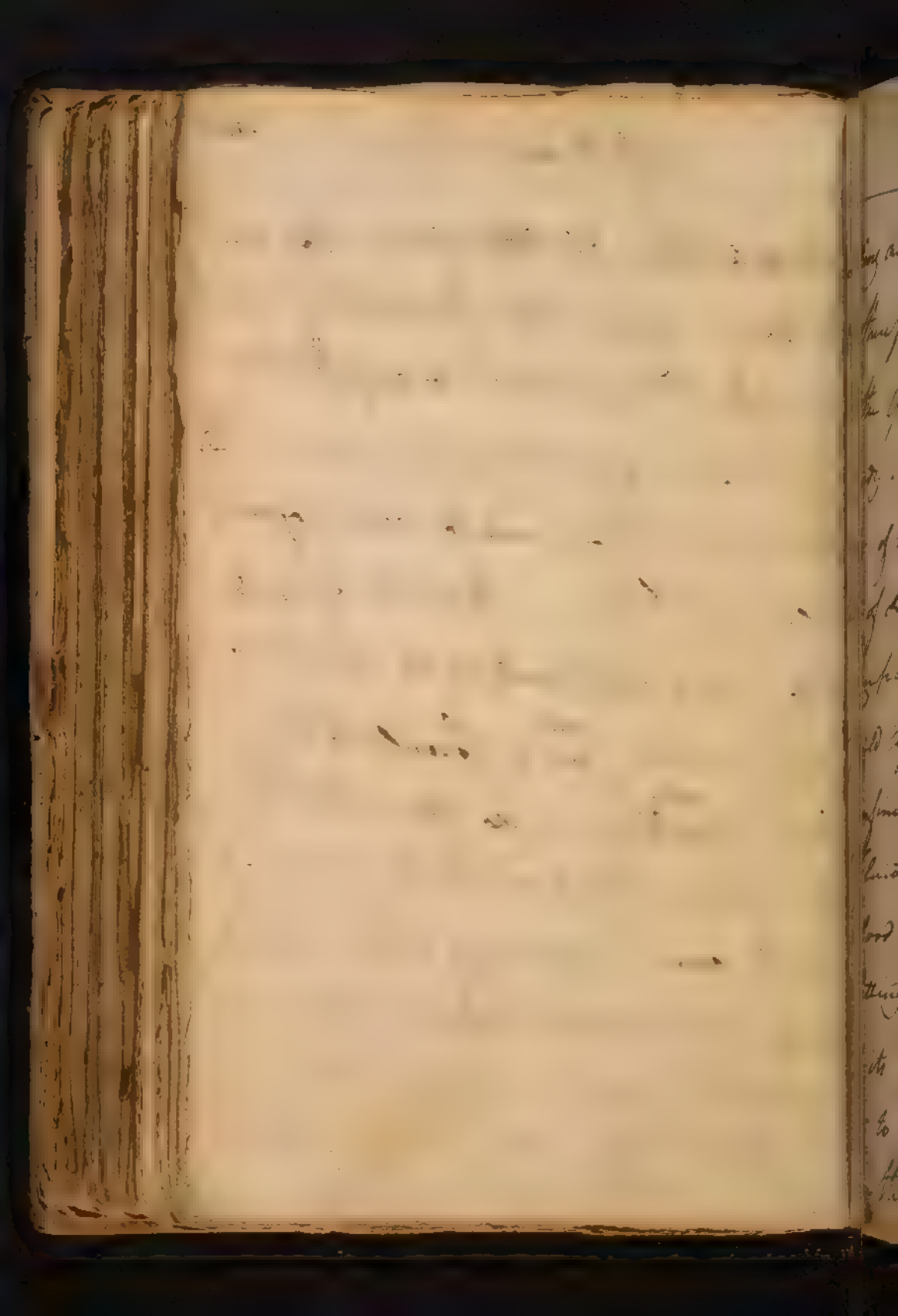
4th Warm Bathing is calculated

To answer this Indication when
 used in the Form of $\frac{1}{2}$ [℥] Senecupium. it
 acts by taking off $\frac{1}{2}$ [℥] Resistance in
 the Uterus. its virtues then are chiefly
 Antispasmodic.



of Blood-Letting. 640

Much Study & Attention has been
bestowed upon this Evacuation at all
times by Physicians. many Disputes
have been agitated concerning it ^{we} ~~it~~
indeed is a Reproach to our Dogmatical
Plan of Physic. But this depends
upon our appealing so much to
Experience ^{we} ~~it~~ is liable to such
great Fallacy, so that this throws
the Reproach upon Impiicism. I
shall avoid entering into the Dis-
putes concerning Blood-Letting, &
deliver you in a few words my
Sentiments upon it. 1st then Blood.



Blood: Letting

641

Letting acts much as an Evacuant
& therefore its Effects will be Relative
to the Quantity of the Blood in the
Body. Authors differ about the Quan-
tity of the Fluids in the Body, upon $\frac{1}{2}$
some of them taking into their
computations the fluids ⁱⁿ $\frac{1}{4}$ solids
yield by Chemical Analysis. I shall
confine myself only to the circulating
Fluids, or those Only ⁱⁿ w^h convey red
Blood. every thing drawn by Blood-
letting comes only from $\frac{1}{4}$ red vessels
& its Effects will be confined to them,
or to that Blood only ⁱⁿ w^h circulates
in the larger vessels, for $\frac{1}{4}$ Blood

2.

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of blood-letting

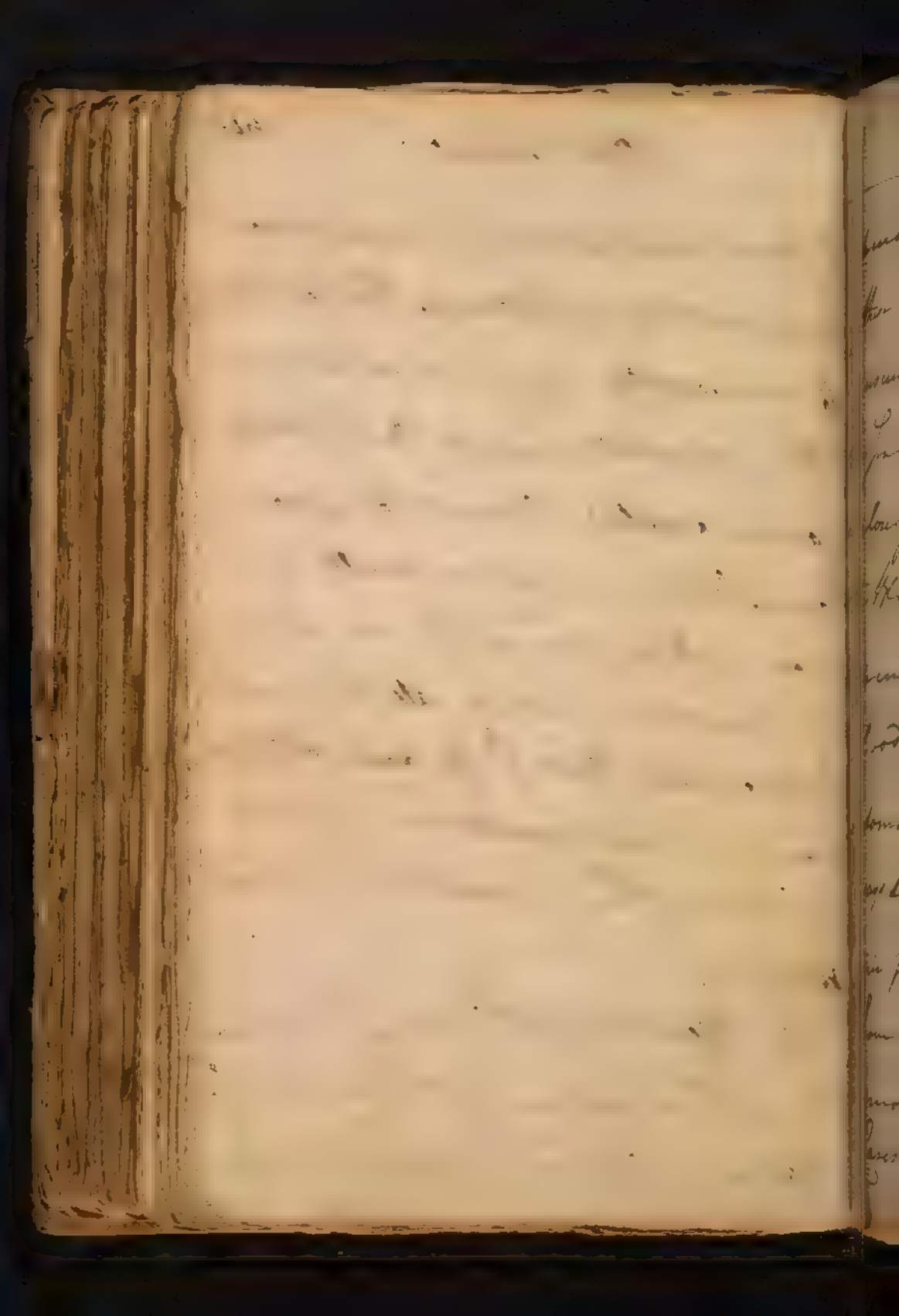
642

circulating in the Serous vessels
is beyond the Reach of $\frac{1}{4}$ Discharge
on Blood-letting occasions. I believe
therefore that the Quantity of blood
may be placed below 25 in a man
of 120 weight. But again the Effects
of blood-letting will be diversified
by the Quantity of red Globules
drawn off. You see then that blood-
letting will occasion a considerable
Depletion in the Arterial System.
Some tell us that ^{this} Depletion is very
transitory from Function being
decreased, & from liquid Aliment
being thrown in to the Body, but ^{this} ~~the~~

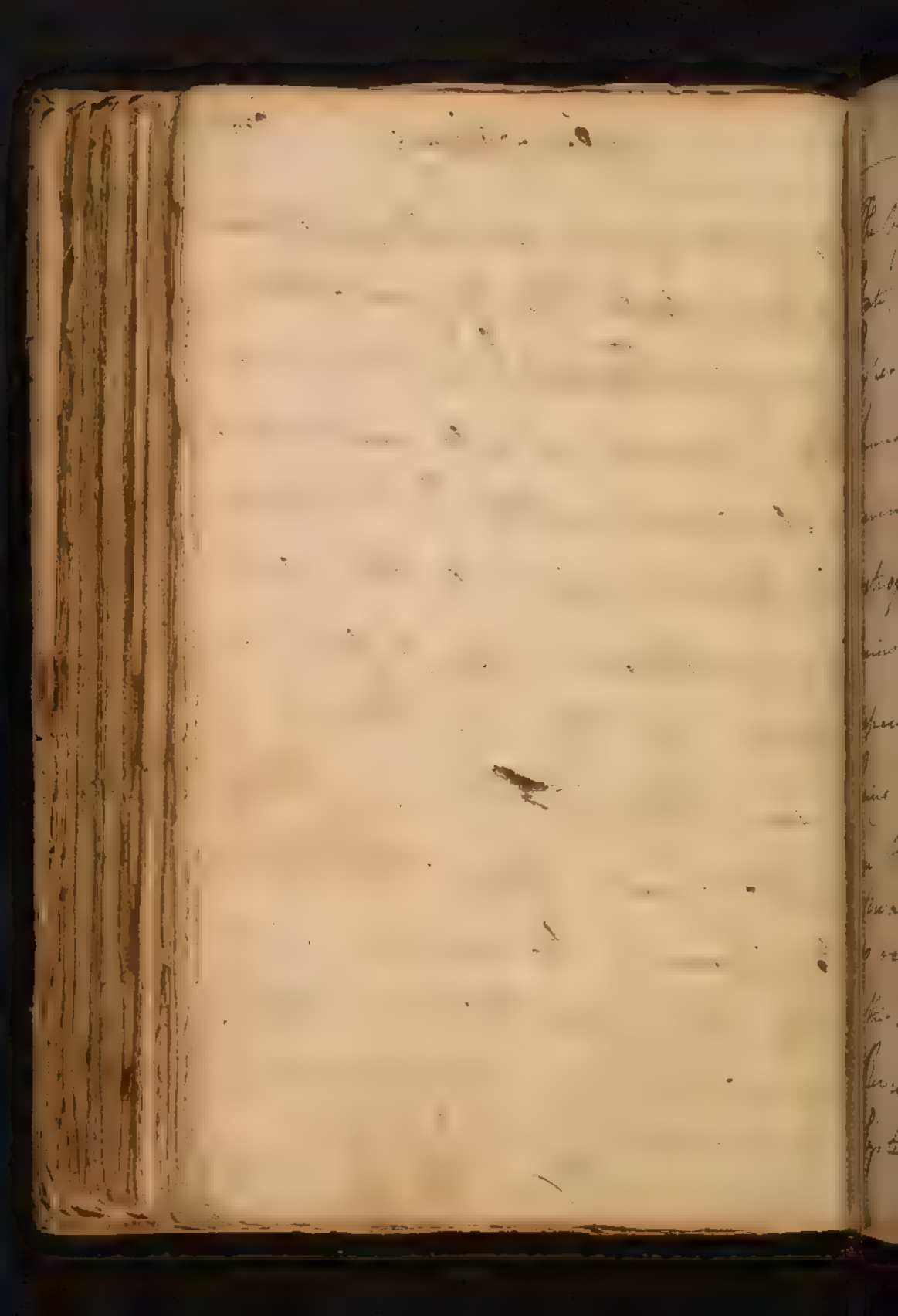
of these contribute to $\frac{1}{4}$ immediate
Regeneration of Blood. The last passes
off immediately by Urine or Perspiration.

The Coagulable Lymph & Red Globules
require a solid Aliment to reproduce
them, & this we know is seldom
given in those Cases ^{in the} w: Blood-Letting
is indicated or ordered. all this you see
tends to show that $\frac{1}{4}$ Quantity of Blood
drawn is much greater ^{than} w: regard to
the Rest of the System than has been
supposed.

The Effects then of Blood-Letting are
on
1. a Diminution of the Tension of $\frac{1}{4}$
Blood. vessels ^{as} I told you before.



depends upon a certain Degree of Tension
of these Vessels. The Tension of the
Muscular Fibres & Excitement of
the Lincorium you will naturally see
is closely connected wth the Tension of
the Blood - Vessels, as their Action
depend upon a due Influx of
Blood into them. a Debility then
& some Degree of Atonia must al-
ways succeed a Loss of Blood. If the
tonic power is too much increased
from any Cause Blood Letting will
remove it. hence its great Use in
Cases of Inflammⁿ. Diathesis.



The vessels are always in a stretched state, & this will be for DeHaller's Experiment in w. he found upon puncturing an Artery in a living animal that the blood had a retrograde motion in the Arteries & veins towards the Open Orifice. It depends upon the stretching power being taken off, & the vessels reacting on the blood, - w. causes it to tend towards that Part where the Tension is removed i.e. the Orifice.

This Doctrine overthrows the Notion of Revulsion as the Balance as of the System will be restored immediately

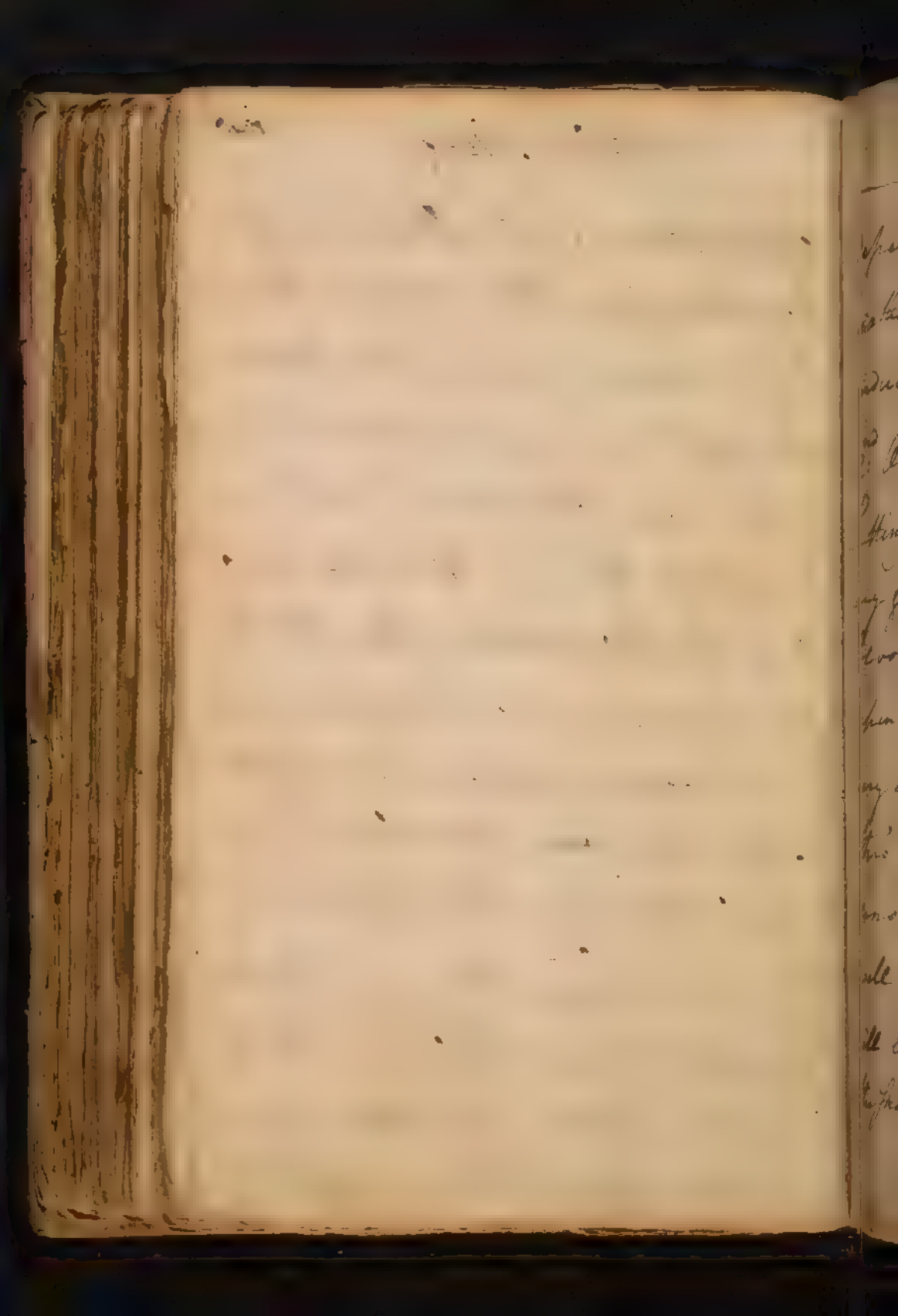
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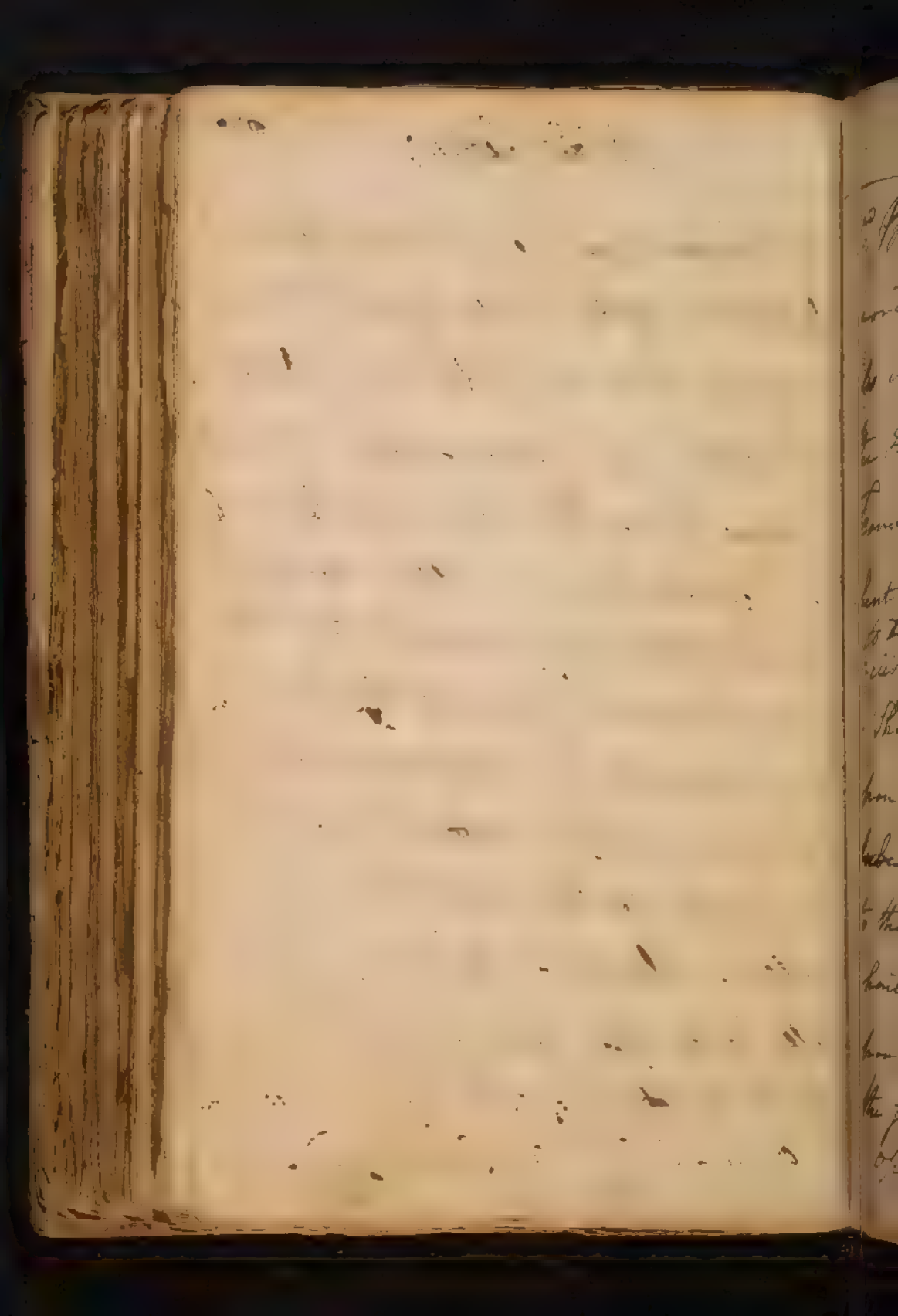
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after bleeding. the doctrine of
Reversion first took its Rise from
Physicians supposing the Arteries
were rigid Canals, but later Experi-
ments have taught us $\frac{1}{2}$ contrary.
I conclude then $\frac{1}{2}$ Blood-Letting acts
only by Depletion. But this Deple-
tion will always be more immediate
& more conspicuous in particular
parts than over the whole System
thence the use & Foundation of
Topical Bleeding. Thus in an Orthopnea
drawing $\frac{1}{2}$ an ounce from near $\frac{1}{2}$ Eye
half the Quantity of blood will do
more service than three times $\frac{1}{2}$ quan-
tity taken from the Arm, unless it

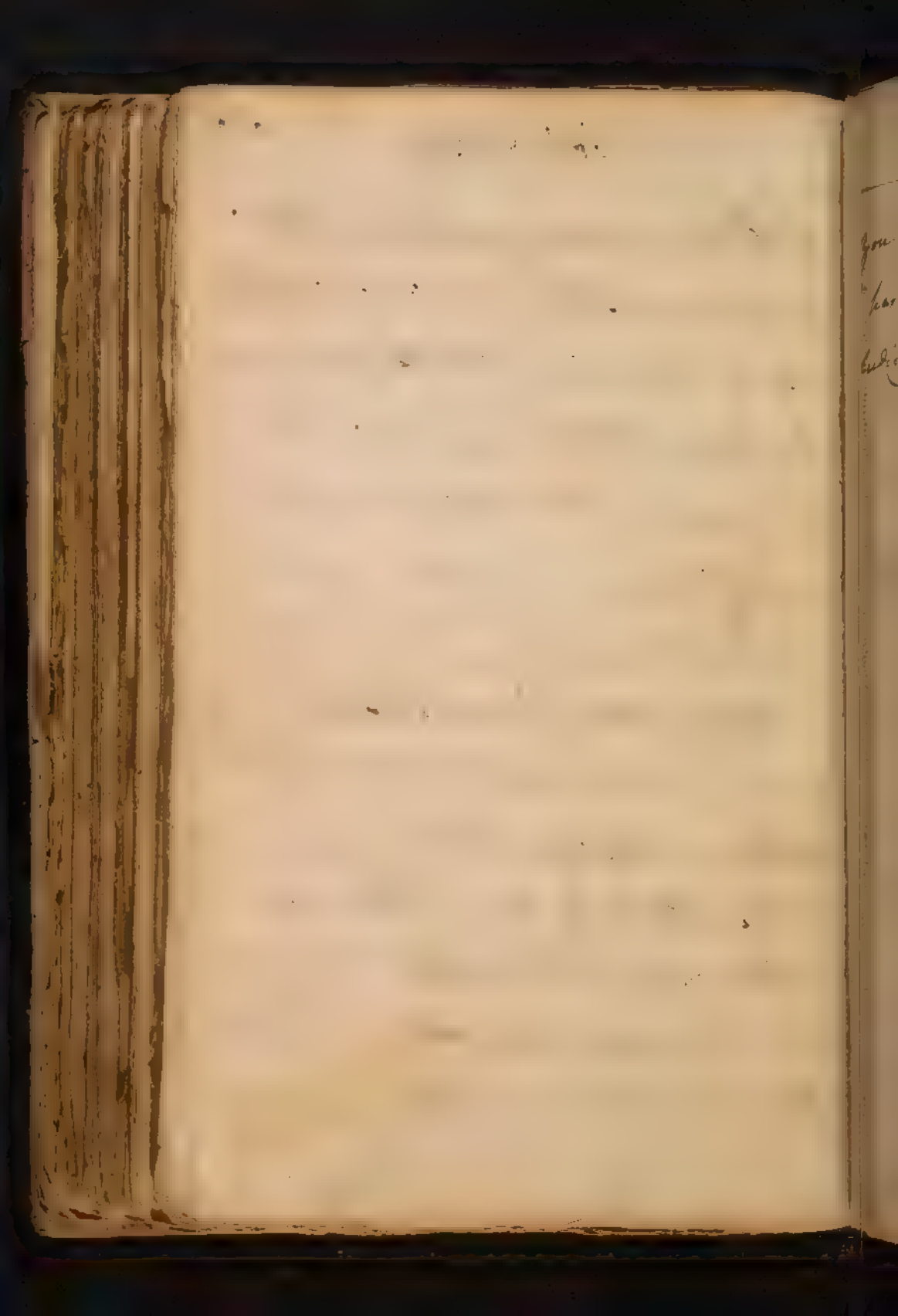


Depends upon a general Inflamm.
Diathesis of the whole System, or has
induced such an Inflamm.ⁿ Diathesis.

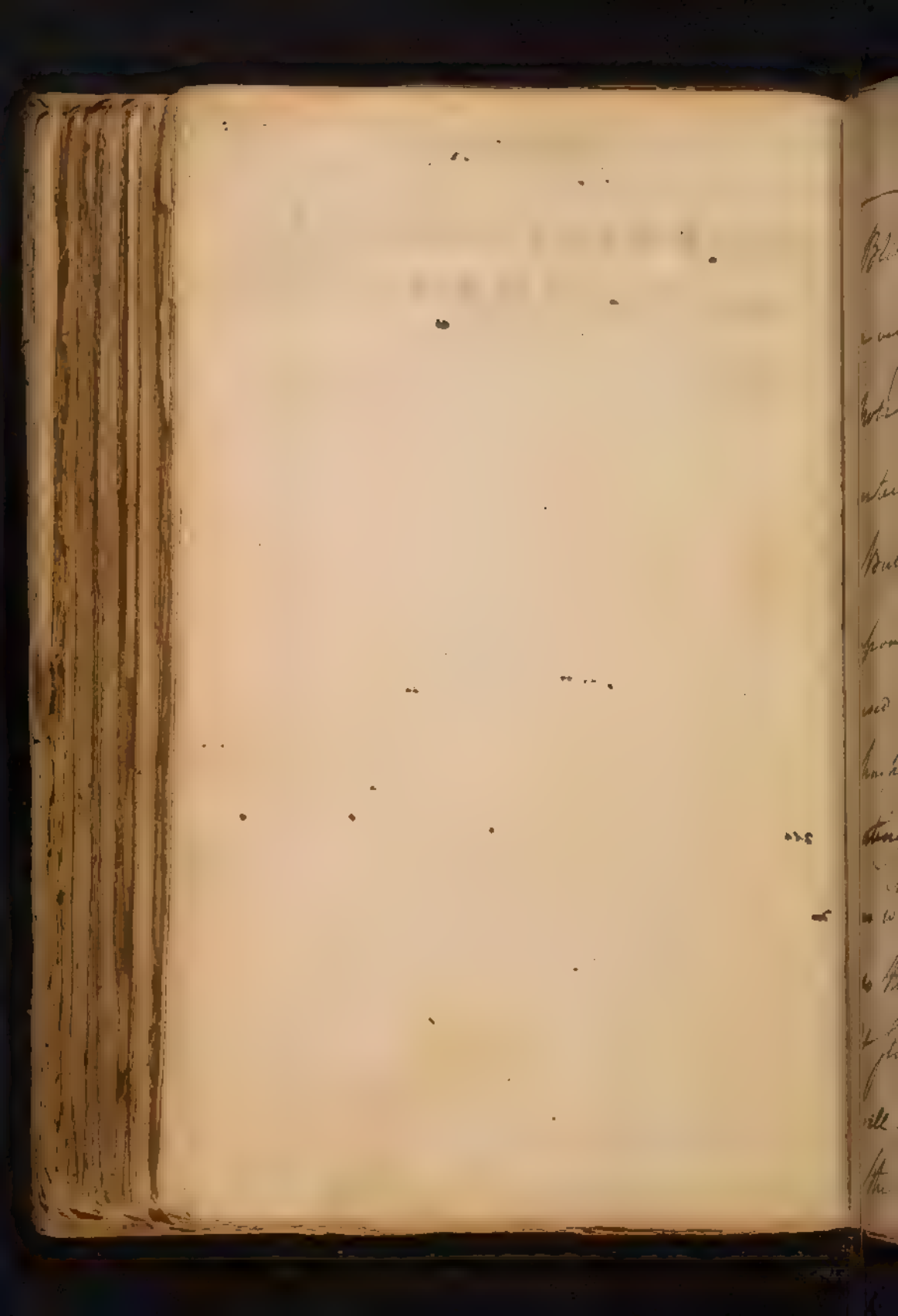
2nd Other Circumstances attend Blood:
Letting besides Depletion. In Cases of
very great pain we often see $\frac{1}{2}$ of
Blood afford immediate Relief. This
depends upon $\frac{1}{2}$ Tension of the System being
very exquisite, & uniformly connected
thro' all its parts, & wth makes it
sensible to the least Relative as
well as Absolute Depletion. This Relief
will be greater according to $\frac{1}{2}$ Fullness of
the System of in wth it flows.



3.rd Blood Letting will have Effects according to the Number of ~~veins~~ ^{veins} in Action w^h tend to keep up the Irritability of the System. hence the Foundation of Bleeding in a recumbent Posture. The nearer we are to Lying on our Backs. the less Muscles act - & the slower the Pulse. The Symptoms th follow Bleeding depend upon a Relaxation induced in the ~~sub~~ Arteries w^h is communicated to the whole System. I have seen a hail young Fellow fall into a Syncope upon having a tense Impostume about the size of a Pistle of the small pox opened in his Forehead.



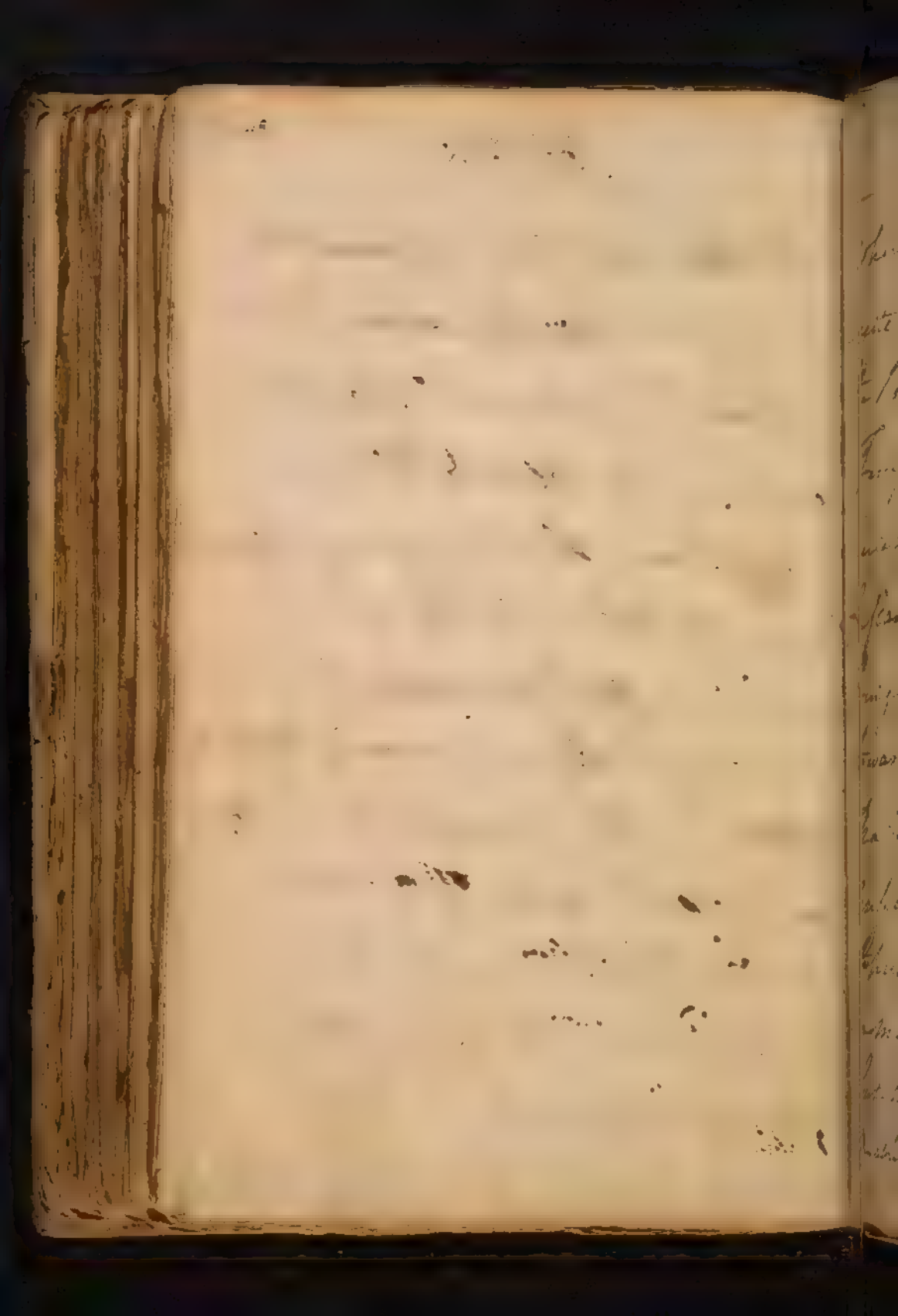
you will be easily be led to apply
w^h has been said to arterial^{ly} topical
bleeding. —



Blisters have been supposed to have
a very extensive Operation from a
notionth has prevailed of an Acid
entering the Blood & discolring it.

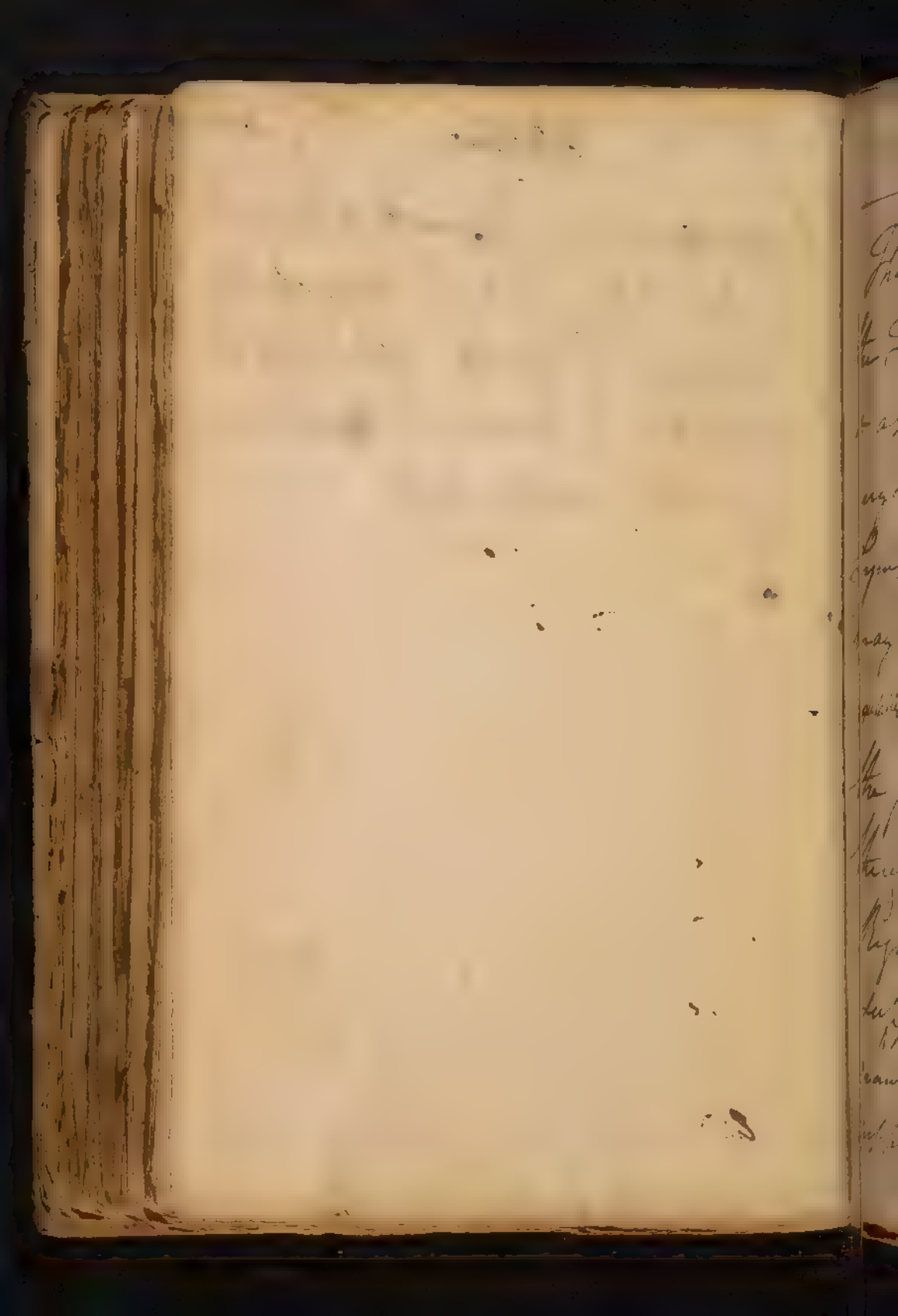
But I deny their having any Effects
upon the Blood for 1st they are never
used in suffici^t Quantities for this
purpose. 2nd They act not only by evacua-
ting but they likewise excite Inflammⁿ.

3rd is the Foundation of their blistering.
so that Blisters are both Evacuants
& Stimulants. the Effects of Blisters
will vary according to the Difference of
the Constitution they are employed in.

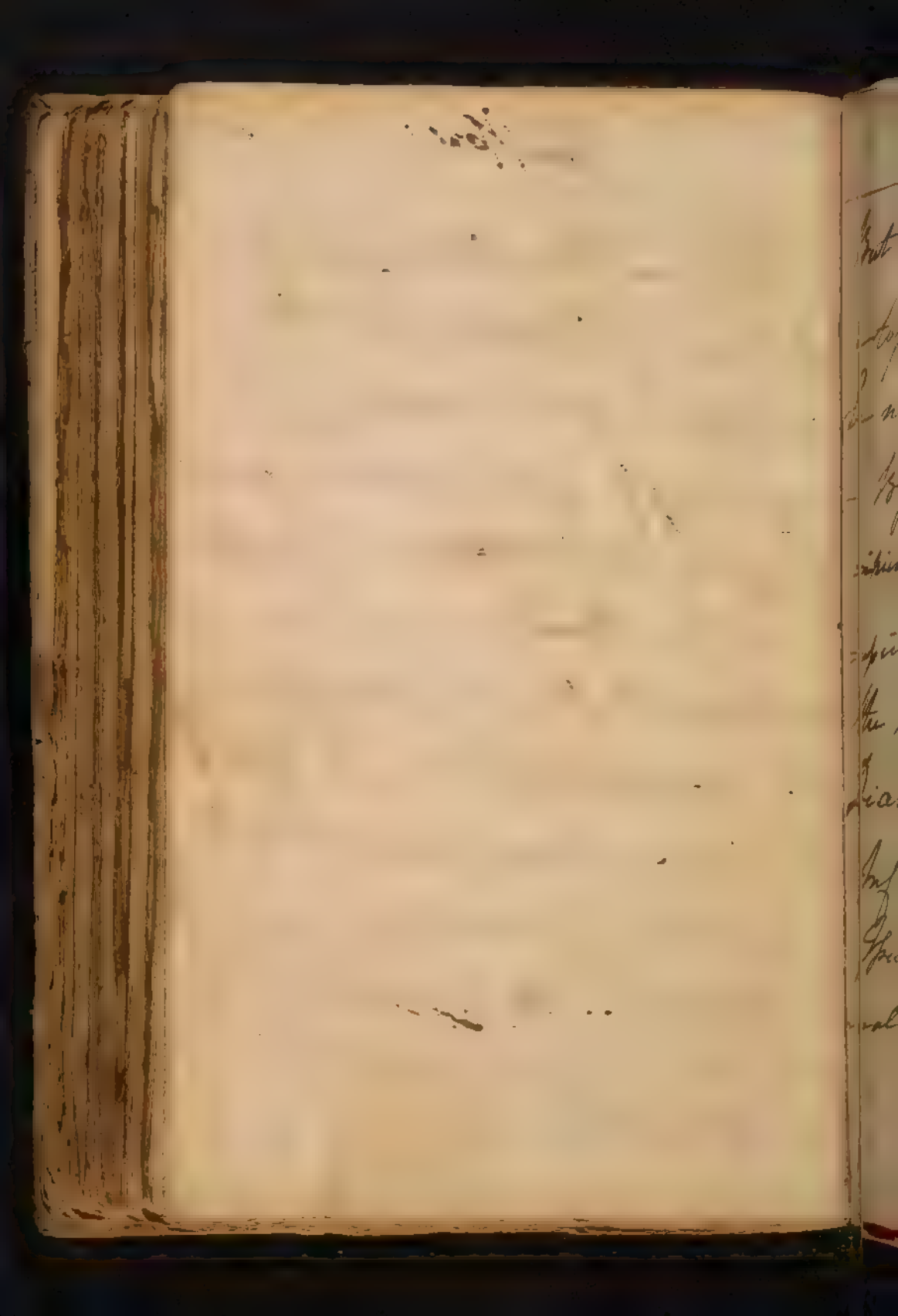


When there is little irritability they
excite no Inflamm: nor are quicken
the Pulse. In Constitutions of a contrary
Temperament they prove stimulat: &
quicken the pulse. & we relieve an
Inflamm: in a particular part by
bringing on an Effusion of Serum
towards which the Inflamm: itself did not
naturally tend. This shows you their
Usefulness in Rheumatism. By this
topical Evacuation it often takes off
a morbid Tension from the whole System.
But their Effects are always the more consid-
erable the more they are applied to a

particular part. But still I think the
Tension of the whole surface of the
skin may be greatly influenc^d. by the
Application of Blisters to ~~the whole~~
any Part of the body. —



This is an excretion of matter in
the form of Pus & from late Discharge
it appears to be produced from ^{the} lymph,
very strongly impregnated w. Coagulable
Lymph. The Discharge then from Spines
may be considered as nearly pure Co-
agulable Lymph, & comes directly from
the sanguiferous system. Its Effects
therefore are more considerable w.
Regard to the system than we would
suppose from the Quantity ^{Discharged}. They
draw off the Lymph faster than it is
supplied by Aliment. -



But again Issues always keep up
a topical Inflammⁿ. for there can
be no Suppuration without ^{some} Inflammⁿ.
- By this Operation they Provocate
- distant Inflammⁿ. I have seen this useful
- in the Phtisis Pulmonalis. If
the Body is affected th w an Inflammⁿ.
Diathesis while an Issue runs the
Inflammⁿ Determinⁿ is towards the
Issue, & thus often prevents inter-
nal Inflammations. —

1773

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This is a very large & intricate subject.
I shall first consider ^{their} ~~the~~ general Effects.
^{we} will inform you to apply ^{them} ~~it~~ in
particular Diseases

1. They evacuate the Contents of ^{the} Stomach.
They often operate in this manner,
when extraneous matters are introduced
there, or morbid matter formed there
by error in Digestion or other Causes.
Too much stress has been laid upon
the evacuating Effects of Vomits from a
want of knowledge the process of Digestion
& the nature of the Fluid in ^{the} Stomach.

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- 2nd Vomiting derives many Solids into the stomach ^{as} were not there till the vomit was given, & even goes so far as to ~~increase~~ ^{increase} the peristaltic motion of the Guts inwards of $\frac{1}{4}$ pancreatic Juice & Bile are often thrown up by Vomiting. This leads us to vine vomit-
 ting in a more extensive manner ^{if} we have hitherto done. I once knew a Practitioner of Physic who used no other method of curing Dropsy but by frequent Exhilation of vomits.
- 3rd Vomiting in consequence of bringing the Solids of the Guts into the stomach generally acts as Purgative perhaps the more

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of some part of $\frac{1}{2}$ vomit over the Pylorus may contribute to bring on the Purging.

2^d In vomiting the Contractions of the Diaphragm & Abdominal ^{muscles} compresses the abdominal viscera by w^h means the Course of the blood is variously interrupted & relaxed. they act likewise as a stimulus to all $\frac{1}{2}$ viscera & operate on $\frac{1}{2}$ Liver - Kidneys - Urine &c. The Liver in particular is very liable to a two-fold Circulation & a stagnation of blood.

no Medicines are capable of reaching it. Vomiting then acts immediately upon it, & therefore sh^d be used very freely in Diseases of the Liver. great Caution

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sh^d be used in Diseases of the Kidneys, especially
in Cases of Stone when they are very large.

In Obstructions of the Menstrues the Confusion
arising by vomiting, excites the Reflex of the
Uterus & thus often bring on a Flux of
the Menstrues. In uterine Haemorrhages
they have likewise been employed ^{in several} ~~in several~~
- here I shall say in ^{the} manner.

5.th They operate on the Thorax, & promote
a free Circulation of the blood thro^gh
Lungs. they cause the mucous Glands
to exude plentifully & thus prove ^{the}
most useful Expectorants.

6.th They relieve Congestions of ~~the~~ in ^{the}
Head in particular Cases. But here
they sh^d be used only ^{at} a certain period

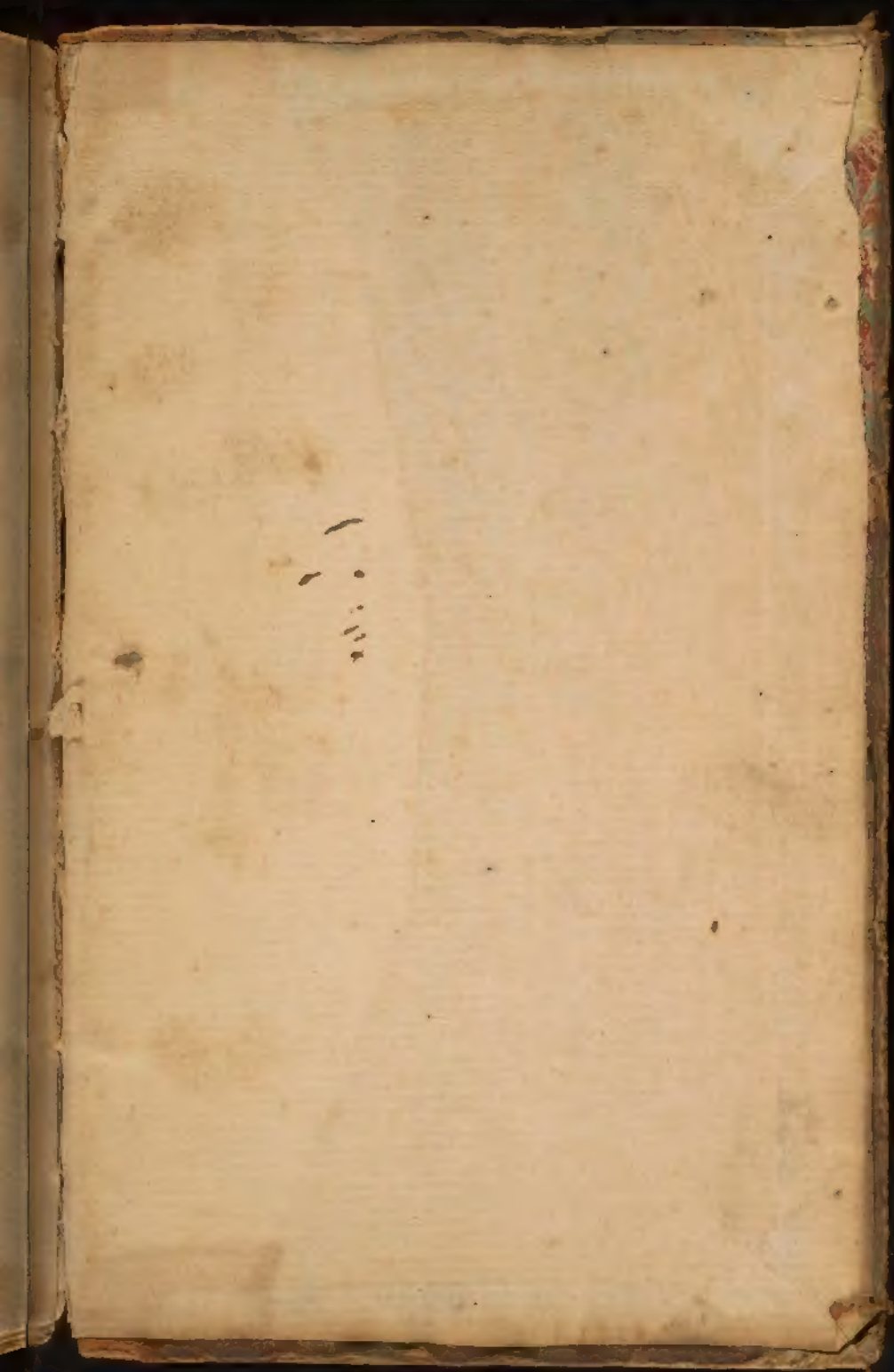
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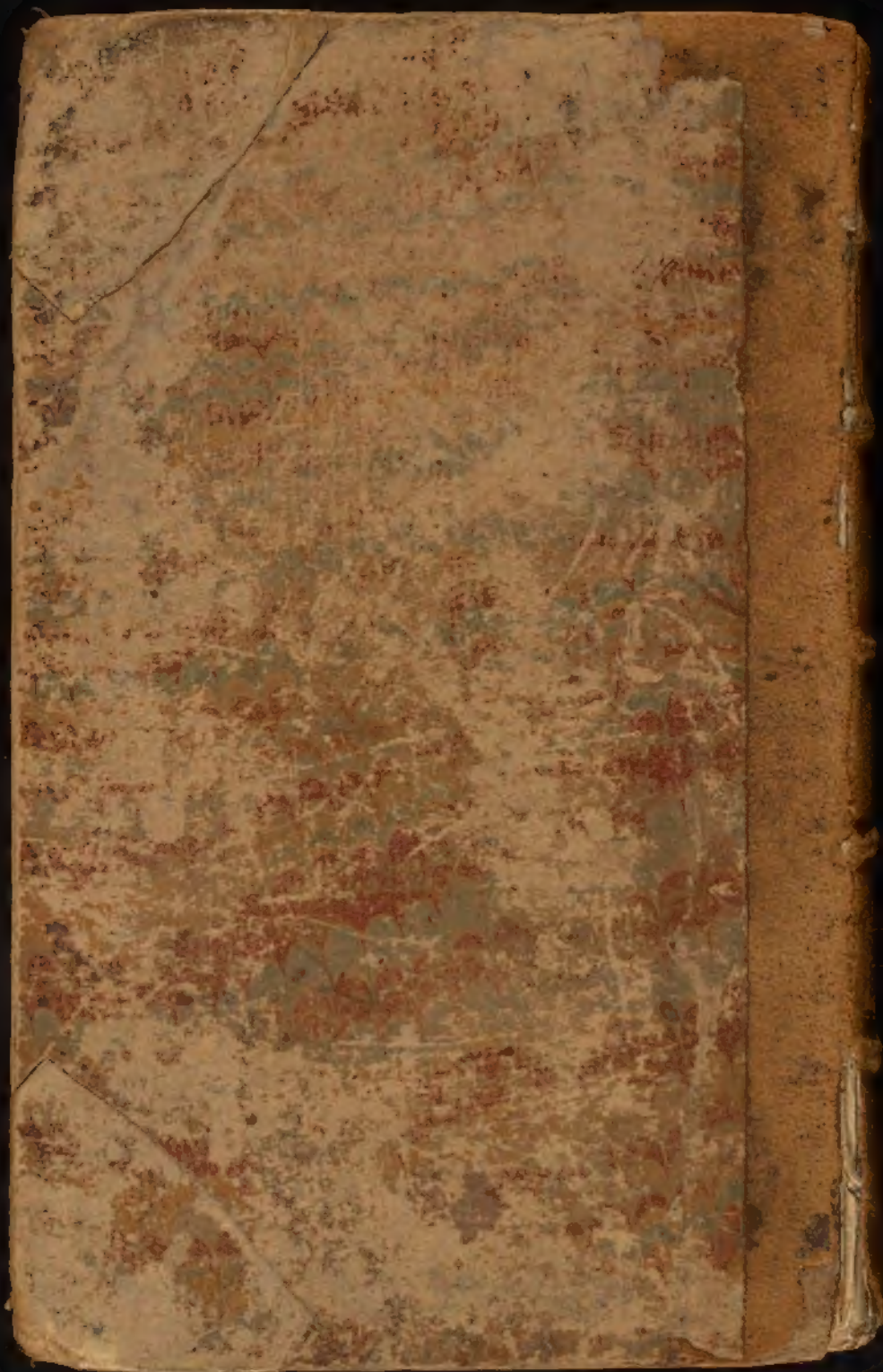
of Life & under very particular
Restrictions.

7.th They quicken the Circulation all
over the System & thus prove very power-
ful Sudorifics in Fevers & other Diseases
when Sweating is necessary.

8.th Vomiting is always attended wth that
Anxiety we call Fihn's wth has very
different Effects upon the System from
any thing we have said. These Effects
depend upon the wonderful Connection
w^{ch} is established between the Stomach
& the Rest of the System. —

Notes





Cullen's
Institutes
Vol III